

**1,3-DIAMINO-2-HYDROXYPROPANE PRODRUG DERIVATIVES**

**CROSS REFERENCE TO RELATED APPLICATIONS**

This application claims priority from U.S. Provisional Application Serial No. 60/408,783, filed September 6, 2002, which is incorporated herein by reference in its entirety.

**BACKGROUND OF THE INVENTION**

**Field of the Invention**

The invention relates to 1,3-diamino-2-hydroxypropane prodrug derivatives and to such compounds that are useful in the treatment of Alzheimer's disease and related diseases. More specifically, it relates to such compounds that are capable of yielding or generating, either in vitro or in vivo, compounds that inhibit beta-secretase, an enzyme that cleaves amyloid precursor protein to produce amyloid beta peptide (A beta), a major component of the amyloid plaques found in the brains of Alzheimer's sufferers.

**Background of the Invention**

Alzheimer's disease (AD) is a progressive degenerative disease of the brain primarily associated with aging. Clinical presentation of AD is characterized by loss of memory, cognition, reasoning, judgment, and orientation. As the disease progresses, motor, sensory, and linguistic abilities are also affected until there is global impairment of multiple cognitive functions. These cognitive losses occur gradually, but typically lead to severe impairment and eventual death in the range of four to twelve years.

Alzheimer's disease is characterized by two major pathologic observations in the brain: neurofibrillary

tangles and beta amyloid (or neuritic) plaques, comprised predominantly of an aggregate of a peptide fragment known as A beta. Individuals with AD exhibit characteristic beta-amyloid deposits in the brain (beta amyloid plaques) and in cerebral blood vessels (beta amyloid angiopathy) as well as neurofibrillary tangles. Neurofibrillary tangles occur not only in Alzheimer's disease but also in other dementia-inducing disorders. On autopsy, large numbers of these lesions are generally found in areas of the human brain important for memory and cognition.

Smaller numbers of these lesions in a more restricted anatomical distribution are found in the brains of most aged humans who do not have clinical AD. Amyloidogenic plaques and vascular amyloid angiopathy also characterize the brains of individuals with Trisomy 21 (Down's Syndrome), Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type (HCHWA-D), and other neurodegenerative disorders. Beta-amyloid is a defining feature of AD, now believed to be a causative precursor or factor in the development of disease. Deposition of A beta in areas of the brain responsible for cognitive activities is a major factor in the development of AD. Beta-amyloid plaques are predominantly composed of amyloid beta peptide (A beta, also sometimes designated betaA4). A beta peptide is derived by proteolysis of the amyloid precursor protein (APP) and is comprised of 39-42 amino acids. Several proteases called secretases are involved in the processing of APP.

Cleavage of APP at the N-terminus of the A beta peptide by beta-secretase and at the C-terminus by one or more gamma-secretases constitutes the beta-amyloidogenic pathway, i.e. the pathway by which A beta is formed. Cleavage of APP by alpha-secretase produces alpha-sAPP, a

secreted form of APP that does not result in beta-amyloid plaque formation. This alternate pathway precludes the formation of A beta peptide. A description of the proteolytic processing fragments of APP is found, for example, in U.S. Patent Nos. 5,441,870; 5,721,130; and 5,942,400.

An aspartyl protease has been identified as the enzyme responsible for processing of APP at the beta-secretase cleavage site. The beta-secretase enzyme has been disclosed using varied nomenclature, including BACE, Asp, and Memapsin. See, for example, Sinha et al., 1999, *Nature* 402:537-554 (p501) and published PCT application WO00/17369.

Several lines of evidence indicate that progressive cerebral deposition of beta-amyloid peptide (A beta) plays a seminal role in the pathogenesis of AD and can precede cognitive symptoms by years or decades. See, for example, Selkoe, 1991, *Neuron* 6:487. Release of A beta from neuronal cells grown in culture and the presence of A beta in cerebrospinal fluid (CSF) of both normal individuals and AD patients has been demonstrated. See, for example, Seubert et al., 1992, *Nature* 359:325-327.

It has been proposed that A beta peptide accumulates as a result of APP processing by beta-secretase, thus inhibition of this enzyme's activity is desirable for the treatment of AD. *In vivo* processing of APP at the beta-secretase cleavage site is thought to be a rate-limiting step in A beta production, and is thus a therapeutic target for the treatment of AD. See for example, Sabbagh, M., et al., 1997, *Alz. Dis. Rev.* 3, 1-19.

BACE1 knockout mice fail to produce A beta, and present a normal phenotype. When crossed with transgenic mice that over express APP, the progeny show reduced

amounts of A beta in brain extracts as compared with control animals (Luo et al., 2001 *Nature Neuroscience* 4:231-232). This evidence further supports the proposal that inhibition of beta-secretase activity and reduction of A beta in the brain provides a therapeutic method for the treatment of AD and other beta amyloid disorders.

At present there are no effective treatments for halting, preventing, or reversing the progression of Alzheimer's disease. Therefore, there is an urgent need for pharmaceutical agents capable of slowing the progression of Alzheimer's disease and/or preventing it in the first place.

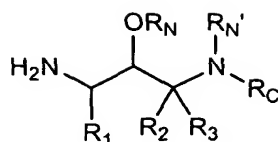
Compounds that are effective inhibitors of beta-secretase, that inhibit beta-secretase-mediated cleavage of APP, that are effective inhibitors of A beta production, and/or are effective to reduce amyloid beta deposits or plaques, are needed for the treatment and prevention of disease characterized by amyloid beta deposits or plaques, such as AD.

#### SUMMARY OF THE INVENTION

The invention encompasses the compounds of formula (AA), (I) and (X) shown below, pharmaceutical compositions containing the compounds and methods employing such compounds or compositions in the treatment of Alzheimer's disease and more specifically compounds that are capable of inhibiting beta-secretase, an enzyme that cleaves amyloid precursor protein to produce A-beta peptide, a major component of the amyloid plaques found in the brains of Alzheimer's sufferers.

In one aspect, the invention provides compounds of the formula AA:





(AA)

and pharmaceutically acceptable salts thereof, wherein one of  $R_N$  and  $R_N'$  is hydrogen and

the other is  $-\text{C}(=\text{O})-(\text{CRR}')_{0-6}\text{R}_{100}$ ,  $-\text{C}(=\text{O})-(\text{CRR}')_{1-6}-\text{O}-\text{R}'_{100}$ ,  $-\text{C}(=\text{O})-(\text{CRR}')_{1-6}-\text{S}-\text{R}'_{100}$ ,  $-\text{C}(=\text{O})-(\text{CRR}')_{1-6}-\text{C}(=\text{O})-\text{R}_{100}$ ,  $-\text{C}(=\text{O})-(\text{CRR}')_{1-6}-\text{SO}_2-\text{R}_{100}$ ,  $-\text{C}(=\text{O})-(\text{CRR}')_{1-6}-\text{NR}_{100}-\text{R}'_{100}$ ,

or  $\text{Y}-\text{Z}-\text{X}-(\text{CH}_2)_{n_7}-\underset{\text{R}_4}{\text{CH}}\text{C}(\text{O})-$

wherein

$R_4$  is selected from the group consisting of H;  $\text{NH}_2$ ;  $-\text{NH}-$   $(\text{CH}_2)_{n_6}-\text{R}_{4-1}$ ;  $-\text{NHR}_8$ ;  $-\text{NR}_{50}\text{C}(\text{O})\text{R}_5$ ;  $\text{C}_1-\text{C}_4$  alkyl- $\text{NHC}(\text{O})\text{R}_5$ ;  $-(\text{CH}_2)_{0-4}\text{R}_8$ ;  $-\text{O}-\text{C}_1-\text{C}_4$  alkanoyl; OH;  $\text{C}_6-\text{C}_{10}$  aryloxy optionally substituted with 1, 2, or 3 groups that are independently halogen,  $\text{C}_1-\text{C}_4$  alkyl,  $-\text{CO}_2\text{H}$ ,  $-\text{C}(\text{O})-\text{C}_1-\text{C}_4$  alkoxy, or  $\text{C}_1-\text{C}_4$  alkoxy;  $\text{C}_1-\text{C}_6$  alkoxy; aryl  $\text{C}_1-\text{C}_4$  alkoxy;  $-\text{NR}_{50}\text{CO}_2\text{R}_{51}$ ;  $-\text{C}_1-\text{C}_4$  alkyl- $\text{NR}_{50}\text{CO}_2\text{R}_{51}$ ;  $-\text{C}\equiv\text{N}$ ;  $-\text{CF}_3$ ;  $-\text{CF}_2-\text{CF}_3$ ;  $-\text{C}\equiv\text{CH}$ ;  $-\text{CH}_2-\text{CH}=\text{CH}_2$ ;  $-(\text{CH}_2)_{1-4}-\text{R}_{4-1}$ ;  $-(\text{CH}_2)_{1-4}-\text{NH}-\text{R}_{4-1}$ ;  $-\text{O}-(\text{CH}_2)_{n_6}-\text{R}_{4-1}$ ;  $-\text{S}-(\text{CH}_2)_{n_6}-\text{R}_{4-1}$ ;  $-(\text{CH}_2)_{0-4}-\text{NHC}(\text{O})-(\text{CH}_2)_{0-6}-\text{R}_{52}$ ;  $-(\text{CH}_2)_{0-4}-\text{R}_{53}-(\text{CH}_2)_{0-4}-\text{R}_{54}$ ;

wherein

$n_6$  is 0, 1, 2, or 3;

$n_7$  is 0, 1, 2, or 3;

$R_{4-1}$  is selected from the group consisting of  $-\text{SO}_2-$   $(\text{C}_1-\text{C}_8$  alkyl),  $-\text{SO}-(\text{C}_1-\text{C}_8$  alkyl),  $-\text{S}-(\text{C}_1-\text{C}_8$  alkyl),  $-\text{S}-\text{CO}-(\text{C}_1-\text{C}_6$  alkyl),  $-\text{SO}_2-\text{NR}_{4-2}\text{R}_{4-3}$ ;  $-\text{CO}-\text{C}_1-\text{C}_2$  alkyl;  $-\text{CO}-\text{NR}_{4-3}\text{R}_{4-4}$ ;

$R_{4-2}$  and  $R_{4-3}$  are independently H,  $\text{C}_1-\text{C}_3$  alkyl, or  $\text{C}_3-\text{C}_6$  cycloalkyl;

$R_{4-4}$  is alkyl, arylalkyl, alkanoyl, or arylalkanoyl;

R<sub>4-6</sub> is-H or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>5</sub> is selected from the group consisting of C<sub>3</sub>-C<sub>7</sub> cycloalkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, -NR<sub>6</sub>R<sub>7</sub>, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>6</sub> heteroaryl, C<sub>6</sub>-C<sub>10</sub> aryl, C<sub>3</sub>-C<sub>7</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl, -S-C<sub>1</sub>-C<sub>4</sub> alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, -CO<sub>2</sub>H, -CONR<sub>6</sub>R<sub>7</sub>, -CO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>6</sub>-C<sub>10</sub> aryloxy; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>1</sub>-C<sub>4</sub> haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, or C<sub>2</sub>-C<sub>4</sub> alkanoyl; aryl optionally substituted with 1, 2, 3, or 4 groups that are independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl;

R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>10</sub> alkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>1</sub>-C<sub>6</sub> alkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

R<sub>9</sub> is aryl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;

R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>51</sub> is selected from the group consisting of aryl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, heteroaryl, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, or -C<sub>1</sub>-C<sub>4</sub> alkoxy;

heterocycloalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, aryl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); aryl; heterocycloalkyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl; and cycloalkylalkyl; wherein the aryl; heterocycloalkyl, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy;

R<sub>52</sub> is heterocycloalkyl, heteroaryl, aryl, cycloalkyl, -S(O)<sub>0-2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, CO<sub>2</sub>H, -C(O)NH<sub>2</sub>, -C(O)NH(alkyl), -C(O)N(alkyl)(alkyl), -CO<sub>2</sub>-alkyl, -NHS(O)<sub>0-2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, -N(alkyl)S(O)<sub>0-2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, -S(O)<sub>0-2</sub>-heteroaryl, -S(O)<sub>0-2</sub>-aryl, -NH(arylalkyl), -N(alkyl)(arylalkyl), thioalkoxy, or alkoxy, each of which is optionally substituted with 1, 2, 3, 4, or 5 groups that are independently alkyl, alkoxy, thioalkoxy, halogen, haloalkyl, haloalkoxy,

alkanoyl, NO<sub>2</sub>, CN, alkoxycarbonyl, or aminocarbonyl;

R<sub>53</sub> is absent, -O-, -C(O)-, -NH-, -N(alkyl)-, -NH-S(O)<sub>0-2</sub>-, -N(alkyl)-S(O)<sub>0-2</sub>-, -S(O)<sub>0-2</sub>-NH-, -S(O)<sub>0-2</sub>-N(alkyl)-, -NH-C(S)-, or -N(alkyl)-C(S)-;

R<sub>54</sub> is heteroaryl, aryl, arylalkyl, heterocycloalkyl, CO<sub>2</sub>H, -CO<sub>2</sub>-alkyl, -C(O)NH(alkyl), -C(O)N(alkyl)(alkyl), -C(O)NH<sub>2</sub>, C<sub>1</sub>-C<sub>8</sub> alkyl, OH, aryloxy, alkoxy, arylalkoxy, NH<sub>2</sub>, NH(alkyl), N(alkyl)(alkyl), or -C<sub>1</sub>-C<sub>6</sub> alkyl-CO<sub>2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, each of which is optionally substituted with 1, 2, 3, 4, or 5 groups that are independently alkyl, alkoxy, CO<sub>2</sub>H, -CO<sub>2</sub>-alkyl, thioalkoxy, halogen, haloalkyl, haloalkoxy, hydroxyalkyl, alkanoyl, NO<sub>2</sub>, CN, alkoxycarbonyl, or aminocarbonyl;

X is selected from the group consisting of -C<sub>1</sub>-C<sub>6</sub> alkylidenyl optionally optionally substituted with 1, 2, or 3 methyl groups; and -NR<sub>4-6</sub>-; or

R<sub>4</sub> and R<sub>4-6</sub> combine to form -(CH<sub>2</sub>)<sub>n10</sub>-, wherein

n<sub>10</sub> is 1, 2, 3, or 4;

Z is selected from the group consisting of a bond; SO<sub>2</sub>; SO; S; and C(O);

Y is selected from the group consisting of H; C<sub>1</sub>-C<sub>4</sub> haloalkyl; C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl; C<sub>6</sub>-C<sub>10</sub> aryl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from the group consisting of halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy; C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, and halogen; alkoxy; aryl optionally substituted with halogen, alkyl, alkoxy, CN or NO<sub>2</sub>;

arylalkyl optionally substituted with halogen, alkyl, alkoxy, CN or NO<sub>2</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; or C<sub>3</sub>-C<sub>8</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl; or

Y<sub>1</sub>, Y<sub>2</sub> and the nitrogen to which they are attached form a ring selected from the group consisting of piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen;

R<sub>1</sub> is -(CH<sub>2</sub>)<sub>1-2</sub>-S(O)<sub>0-2</sub>-(C<sub>1</sub>-C<sub>6</sub> alkyl), or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, OH, =O, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino, -N(R)C(O)R'-, -OC(=O)-amino and -OC(=O)-mono- or dialkylamino, or

C<sub>2</sub>-C<sub>6</sub> alkenyl or C<sub>2</sub>-C<sub>6</sub> alkynyl, each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, and mono- or dialkylamino, or

aryl, heteroaryl, heterocyclyl, -C<sub>1</sub>-C<sub>6</sub> alkyl-aryl, -C<sub>1</sub>-C<sub>6</sub> alkyl-heteroaryl, or -C<sub>1</sub>-C<sub>6</sub> alkyl-heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, -OH, -SH, -C≡N, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -N(R)COR', or

-N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl, -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or -C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently a halogen, or

C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and

the heterocyclyl group is optionally further substituted with oxo;

R and R' independently are hydrogen or C<sub>1</sub>-C<sub>10</sub> alkyl;

R<sub>2</sub> is selected from the group consisting of H; C<sub>1</sub>-C<sub>6</sub> alkyl, optionally substituted with 1, 2, or 3 substituents that are independently selected from the group consisting of C<sub>1</sub>-C<sub>3</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, and -NR<sub>1-a</sub>R<sub>1-b</sub>; wherein R<sub>1-a</sub> and R<sub>1-b</sub> are -H or C<sub>1</sub>-C<sub>6</sub> alkyl;

$-(CH_2)_{0-4}$ -aryl;  $-(CH_2)_{0-4}$ -heteroaryl;  $C_2-C_6$  alkenyl;  $C_2-C_6$  alkynyl;  $-CONR_{N-2}R_{N-3}$ ;  $-SO_2NR_{N-2}R_{N-3}$ ;  $-CO_2H$ ; and  $-CO_2-(C_1-C_4 \text{ alkyl})$ ;

$R_3$  is selected from the group consisting of H;  $C_1-C_6$  alkyl, optionally substituted with 1, 2, or 3 substituents independently selected from the group consisting of  $C_1-C_3$  alkyl, halogen,  $-OH$ ,  $-SH$ ,  $-C\equiv N$ ,  $-CF_3$ ,  $C_1-C_3$  alkoxy, and  $-NR_{1-a}R_{1-b}$ ;  $-(CH_2)_{0-4}$ -aryl;  $-(CH_2)_{0-4}$ -heteroaryl;  $C_2-C_6$  alkenyl;  $C_2-C_6$  alkynyl;  $-CONR_{N-2}R_{N-3}$ ;  $-SO_2-NR_{N-2}R_{N-3}$ ;  $-CO_2H$ ; and  $-CO-O-(C_1-C_4 \text{ alkyl})$ ;

or

$R_2$ ,  $R_3$  and the carbon to which they are attached form a carbocycle of three thru seven carbon atoms, wherein one carbon atom is optionally replaced by a group selected from  $-O-$ ,  $-S-$ ,  $-SO_2-$ , or  $-NR_{N-2}-$ ;

$R_C$  is selected from the group consisting of  $C_1-C_{10}$  alkyl optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of  $R_{205}$ ,  $-OC=ONR_{235}R_{240}$ ,  $-S(=O)_{0-2}(C_1-C_6 \text{ alkyl})$ ,  $-SH$ ,  $-NR_{235}C=ONR_{235}R_{240}$ ,  $-C=ONR_{235}R_{240}$ , and  $-S(=O)_2NR_{235}R_{240}$ ;  $-(CH_2)_{0-3}-(C_3-C_8)$  cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of  $R_{205}$ ,  $-CO_2H$ , and  $-CO_2-(C_1-C_4 \text{ alkyl})$ ;  $-(CR_{245}R_{250})_{0-4}$ -aryl;  $-(CR_{245}R_{250})_{0-4}$ -heteroaryl;  $-(CR_{245}R_{250})_{0-4}$ -heterocycloalkyl;  $-(CR_{245}R_{250})_{0-4}$ -aryl-heteroaryl;  $-(CR_{245}R_{250})_{0-4}$ -aryl-heterocycloalkyl;  $-(CR_{245}R_{250})_{0-4}$ -aryl-aryl;  $-(CR_{245}R_{250})_{0-4}$ -heteroaryl-aryl;  $-(CR_{245}R_{250})_{0-4}$ -heteroaryl-heterocycloalkyl;  $-(CR_{245}R_{250})_{0-4}$ -heteroaryl-heteroaryl;  $-(CR_{245}R_{250})_{0-4}$ -heterocycloalkyl-heteroaryl;  $-(CR_{245}R_{250})_{0-4}$ -heterocycloalkyl-heterocycloalkyl;  $-(CR_{245}R_{250})_{0-4}$ -

heterocycloalkyl-aryl;  $-[C(R_{255})(R_{260})]_{1-3}-CO-N-(R_{255})_2$ ;  
 $-CH(aryl)_2$ ;  $-CH(heteroaryl)_2$ ;  $-CH(heterocycloalkyl)_2$ ;  
 $-CH(aryl)(heteroaryl)$ ; cyclopentyl, cyclohexyl, or  
cycloheptyl ring fused to aryl, heteroaryl, or  
heterocycloalkyl wherein one carbon of the  
cyclopentyl, cyclohexyl, or cycloheptyl is  
optionally replaced with NH,  $NR_{215}$ , O, or  $S(=O)_{0-2}$ ,  
and wherein the cyclopentyl, cyclohexyl, or  
cycloheptyl group can be optionally substituted with  
1 or 2 groups that are independently  $R_{205}$  or  $=O$ ;  $-CO-$   
 $NR_{235}R_{240}$ ;  $-SO_2-(C_1-C_4 \text{ alkyl})$ ;  $C_2-C_{10}$  alkenyl optionally  
substituted with 1, 2, or 3  $R_{205}$  groups;  $C_2-C_{10}$   
alkynyl optionally substituted with 1, 2, or 3  $R_{205}$   
groups;  $-(CH_2)_{0-1}-CH((CH_2)_{0-6}-OH)-(CH_2)_{0-1}-aryl$ ;  $-(CH_2)_{0-1}-CH(R_{C-6})-(CH_2)_{0-1}-heteroaryl$ ;  $-CH(-aryl \text{ or } -heteroaryl)-CO-O(C_1-C_4 \text{ alkyl})$ ;  $-CH(-CH_2-OH)-CH(OH)-phenyl-NO_2$ ;  $(C_1-C_6 \text{ alkyl})-O-(C_1-C_6 \text{ alkyl})-OH$ ;  $-CH_2-NH-CH_2-CH(-O-CH_2-CH_3)_2$ ;  $-H$ ; and  $-(CH_2)_{0-6}-C(=NR_{235})(NR_{235}R_{240})$ ; wherein

each aryl is optionally substituted with 1, 2, or 3

$R_{200}$ ;

each heteroaryl is optionally substituted with 1, 2,  
3, or 4  $R_{200}$ ;

each heterocycloalkyl is optionally substituted with  
1, 2, 3, or 4  $R_{210}$ ;

$R_{200}$  at each occurrence is independently selected  
from the group consisting of  $C_1-C_6$  alkyl  
optionally substituted with 1, 2, or 3  $R_{205}$   
groups; OH;  $-NO_2$ ; halogen;  $-CO_2H$ ;  $C\equiv N$ ;  $-(CH_2)_{0-4}-CO-NR_{220}R_{225}$ ;  $-(CH_2)_{0-4}-CO-(C_1-C_{12} \text{ alkyl})$ ;  $-(CH_2)_{0-4}-CO-(C_2-C_{12} \text{ alkenyl})$ ;  $-(CH_2)_{0-4}-CO-(C_2-C_{12} \text{ alkynyl})$ ;  $-(CH_2)_{0-4}-CO-(C_3-C_7 \text{ cycloalkyl})$ ;  $-(CH_2)_{0-4}-CO-aryl$ ;  
 $-(CH_2)_{0-4}-CO-heteroaryl$ ;  $-(CH_2)_{0-4}-CO-$



heterocycloalkyl;  $-(CH_2)_{0-4}-CO_2R_{215}$ ;  $-(CH_2)_{0-4}-SO_2-$   
 $NR_{220}R_{225}$ ;  $-(CH_2)_{0-4}-SO-(C_1-C_8 \text{ alkyl})$ ;  $-(CH_2)_{0-4}-SO_2-$   
 $(C_1-C_{12} \text{ alkyl})$ ;  $-(CH_2)_{0-4}-SO_2-(C_3-C_7 \text{ cycloalkyl})$ ;  $-(CH_2)_{0-4}-N(H \text{ or } R_{215})-CO_2R_{215}$ ;  $-(CH_2)_{0-4}-N(H \text{ or } R_{215})-CO-N(R_{215})_2$ ;  $-(CH_2)_{0-4}-N-CS-N(R_{215})_2$ ;  $-(CH_2)_{0-4}-N(-H \text{ or } R_{215})-CO-R_{220}$ ;  $-(CH_2)_{0-4}-NR_{220}R_{225}$ ;  $-(CH_2)_{0-4}-O-CO-(C_1-C_6 \text{ alkyl})$ ;  $-(CH_2)_{0-4}-O-P(O)-(OR_{240})_2$ ;  $-(CH_2)_{0-4}-O-CO-N(R_{215})_2$ ;  $-(CH_2)_{0-4}-O-CS-N(R_{215})_2$ ;  $-(CH_2)_{0-4}-O-(R_{215})_2$ ;  $-(CH_2)_{0-4}-O-(R_{215})_2-COOH$ ;  $-(CH_2)_{0-4}-S-(R_{215})_2$ ;  $-(CH_2)_{0-4}-O-(C_1-C_6 \text{ alkyl optionally substituted with 1, 2, 3, or 5 -F})$ ;  $C_3-C_7 \text{ cycloalkyl}$ ;  $C_2-C_6 \text{ alkenyl optionally substituted with 1 or 2 } R_{205} \text{ groups}$ ;  $C_2-C_6 \text{ alkynyl optionally substituted with 1 or 2 } R_{205} \text{ groups}$ ;  $-(CH_2)_{0-4}-N(H \text{ or } R_{215})-SO_2-R_{220}$ ; and  $-(CH_2)_{0-4}-C_3-C_7 \text{ cycloalkyl}$ ;  
wherein each aryl group at each occurrence is  
optionally substituted with 1, 2, or 3  
groups that are independently  $R_{205}$ ,  $R_{210}$  or  
 $C_1-C_6 \text{ alkyl}$  substituted with 1, 2, or 3  
groups that are independently  $R_{205}$  or  $R_{210}$ ;  
wherein each heterocycloalkyl group at each  
occurrence is optionally substituted with  
1, 2, or 3 groups that are independently  
 $R_{210}$ ;  
wherein each heteroaryl group at each  
occurrence is optionally substituted with  
1, 2, or 3 groups that are independently  
 $R_{205}$ ,  $R_{210}$ , or  $C_1-C_6 \text{ alkyl}$  substituted with  
1, 2, or 3 groups that are independently  
 $R_{205}$  or  $R_{210}$ ;  
 $R_{205}$  at each occurrence is independently selected  
from the group consisting of  $C_1-C_6 \text{ alkyl}$ ,  
halogen,  $-OH$ ,  $-O\text{-phenyl}$ ,  $-SH$ ,  $-C\equiv N$ ,  $-CF_3$ ,  $C_1-C_6$

alkoxy,  $\text{NH}_2$ ,  $\text{NH}(\text{C}_1\text{-C}_6 \text{ alkyl})$ , and  $\text{N}-(\text{C}_1\text{-C}_6 \text{ alkyl})(\text{C}_1\text{-C}_6 \text{ alkyl})$ ;

R<sub>210</sub> at each occurrence is independently selected from the group consisting of  $\text{C}_1\text{-C}_6$  alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups;  $\text{C}_2\text{-C}_6$  alkenyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups;  $\text{C}_2\text{-C}_6$  alkynyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; halogen;  $\text{C}_1\text{-C}_6$  alkoxy;  $\text{C}_1\text{-C}_6$  haloalkoxy;  $-\text{NR}_{220}\text{R}_{225}$ ;  $\text{OH}$ ;  $\text{C}\equiv\text{N}$ ;  $\text{C}_3\text{-C}_7$  cycloalkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups;  $-\text{CO}-(\text{C}_1\text{-C}_4 \text{ alkyl})$ ;  $-\text{SO}_2\text{-NR}_{235}\text{R}_{240}$ ;  $-\text{CO-NR}_{235}\text{R}_{240}$ ;  $-\text{SO}_2-(\text{C}_1\text{-C}_4 \text{ alkyl})$ ; and  $=\text{O}$ ; wherein

R<sub>215</sub> at each occurrence is independently selected from the group consisting of  $\text{C}_1\text{-C}_6$  alkyl,  $-(\text{CH}_2)_{0-2}-(\text{aryl})$ ,  $\text{C}_2\text{-C}_6$  alkenyl,  $\text{C}_2\text{-C}_6$  alkynyl,  $\text{C}_3\text{-C}_7$  cycloalkyl, and  $-(\text{CH}_2)_{0-2}-(\text{heteroaryl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{heterocycloalkyl})$ ; wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 groups that are independently R<sub>205</sub> or R<sub>210</sub>; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>210</sub>; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>210</sub>;

R<sub>220</sub> and R<sub>225</sub> at each occurrence are independently selected from the group consisting of  $-\text{H}$ ,  $-\text{C}_1\text{-C}_6$  alkyl, hydroxy  $\text{C}_1\text{-C}_6$  alkyl, amino  $\text{C}_1\text{-C}_6$  alkyl; halo  $\text{C}_1\text{-C}_6$  alkyl;  $-\text{C}_3\text{-C}_7$  cycloalkyl,  $-(\text{C}_1\text{-C}_2 \text{ alkyl})-(\text{C}_3\text{-C}_7 \text{ cycloalkyl})$ ,  $-(\text{C}_1\text{-C}_6 \text{ alkyl})-\text{O}-(\text{C}_1\text{-C}_3 \text{ alkyl})$ ,  $-\text{C}_2\text{-C}_6$  alkenyl,  $-\text{C}_2\text{-C}_6$  alkynyl,  $-\text{C}_1\text{-C}_6$  alkyl chain with one double bond and one triple

bond, -aryl, -heteroaryl, and -heterocycloalkyl; wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>270</sub> groups, wherein

R<sub>270</sub> at each occurrence is independently R<sub>205</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; C<sub>2</sub>-C<sub>6</sub> alkenyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; C<sub>2</sub>-C<sub>6</sub> alkynyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkoxy; NR<sub>235</sub>R<sub>240</sub>; OH; C≡N; C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); -SO<sub>2</sub>-NR<sub>235</sub>R<sub>240</sub>; -CO-NR<sub>235</sub>R<sub>240</sub>; -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); and =O; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>205</sub> groups;

R<sub>235</sub> and R<sub>240</sub> at each occurrence are independently H, or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, -(CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub> cycloalkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, aryl C<sub>1</sub>-C<sub>4</sub> alkyl, heteroaryl C<sub>1</sub>-C<sub>4</sub> alkyl, and phenyl; or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, 6, or 7 carbon atoms, optionally where one carbon atom is replaced by a heteroatom selected from the group consisting of -O-, -S-, -SO<sub>2</sub>-, and -NR<sub>220</sub>-;

$R_{255}$  and  $R_{260}$  at each occurrence are independently selected from the group consisting of H;  $C_1$ - $C_6$  alkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups;  $C_2$ - $C_6$  alkenyl optionally substituted with 1, 2, or 3  $R_{205}$  groups;  $C_2$ - $C_6$  alkynyl optionally substituted with 1, 2, or 3  $R_{205}$  groups;  $-(CH_2)_{1-2}-S(O)_{0-2}-(C_1-C_6 \text{ alkyl})$ ;  $-(CH_2)_{0-4}-C_3-C_7$  cycloalkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups;  $-(C_1-C_4 \text{ alkyl})$ -aryl;  $-(C_1-C_4 \text{ alkyl})$ -heteroaryl;  $-(C_1-C_4 \text{ alkyl})$ -heterocycloalkyl;  $-aryl$ ;  $-heteroaryl$ ;  $-heterocycloalkyl$ ;  $-(CH_2)_{1-4}-R_{265}-(CH_2)_{0-4}$ -aryl;  $-(CH_2)_{1-4}-R_{265}-(CH_2)_{0-4}$ -heteroaryl; and;  $-(CH_2)_{1-4}-R_{265}-(CH_2)_{0-4}$ -heterocycloalkyl; wherein  $R_{265}$  at each occurrence is independently  $-O-$ ,  $-S-$  or  $-N(C_1-C_6 \text{ alkyl})-$ ; each aryl or phenyl is optionally substituted with 1, 2, or 3 groups that are independently  $R_{205}$ ,  $R_{210}$ , or  $C_1-C_6$  alkyl substituted with 1, 2, or 3 groups that are independently  $R_{205}$  or  $R_{210}$ ; each heteroaryl is optionally substituted with 1, 2, 3, or 4  $R_{200}$ , each heterocycloalkyl is optionally substituted with 1, 2, 3, or 4  $R_{210}$ ;

$R_{100}$  and  $R'_{100}$  independently represent aryl, heteroaryl, heterocyclyl,  $-aryl-W-aryl$ ,  $-aryl-W-heteroaryl$ ,  $-aryl-W-heterocyclyl$ ,  $-heteroaryl-W-aryl$ ,  $-heteroaryl-W-heteroaryl$ ,  $-heteroaryl-W-heterocyclyl$ ,  $-heterocyclyl-W-aryl$ ,  $-heterocyclyl-W-heteroaryl$ ,  $-heterocyclyl-W-heterocyclyl$ ,  $-CH[(CH_2)_{0-2}-O-R_{150}]-(CH_2)_{0-2}$ -aryl,  $-CH[(CH_2)_{0-2}-O-R_{150}]-(CH_2)_{0-2}$ -heterocyclyl or  $-CH[(CH_2)_{0-2}-O-R_{150}]-(CH_2)_{0-2}$ -heteroaryl, where the ring portions of each are

optionally substituted with 1, 2, or 3 groups independently selected from

-OR, -NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -C≡N, -OCF<sub>3</sub>, -CF<sub>3</sub>, -  
(CH<sub>2</sub>)<sub>0-4</sub>-O-P(=O)(OR)(OR'), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-O-(CH<sub>2</sub>)<sub>0-4</sub>-CONR<sub>102</sub>R<sub>102</sub>', - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>12</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkenyl), - (CH<sub>2</sub>)<sub>0-4</sub>-  
CO-(C<sub>2</sub>-C<sub>12</sub> alkynyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(CH<sub>2</sub>)<sub>0-4</sub>-(C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO-(C<sub>1</sub>-C<sub>8</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>12</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-  
(CH<sub>2</sub>)<sub>0-4</sub>-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
N(R<sub>150</sub>)-CS-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-R<sub>105</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-CO-  
(C<sub>1</sub>-C<sub>6</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-O-P(O)-(O-R<sub>110</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
O-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-CS-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
O-(R<sub>150</sub>), - (CH<sub>2</sub>)<sub>0-4</sub>-O-R<sub>150</sub>'-COOH, - (CH<sub>2</sub>)<sub>0-4</sub>-S-(R<sub>150</sub>),  
- (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl, (C<sub>2</sub>-C<sub>10</sub>) alkenyl, and (C<sub>2</sub>-  
C<sub>10</sub>) alkynyl, or

R<sub>100</sub> is C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3  
R<sub>115</sub> groups, or

R<sub>100</sub> is -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-C<sub>1</sub>-C<sub>6</sub> alkyl or -(C<sub>1</sub>-C<sub>6</sub> alkyl)-S-  
(C<sub>1</sub>-C<sub>6</sub> alkyl), each of which is optionally  
substituted with 1, 2, or 3 R<sub>115</sub> groups, or

R<sub>100</sub> is C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2,  
or 3 R<sub>115</sub> groups;

W is -(CH<sub>2</sub>)<sub>0-4</sub>-, -O-, -S(O)<sub>0-2</sub>-, -N(R<sub>135</sub>)-, -CR(OH)- or -  
C(O)-;

R<sub>102</sub> and R<sub>102</sub>' independently are hydrogen, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, aryl or -R<sub>110</sub>;

R<sub>105</sub> and R'<sub>105</sub> independently represent -H, -R<sub>110</sub>, -R<sub>120</sub>, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>2</sub> alkyl)-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>3</sub> alkyl), C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, or C<sub>1</sub>-C<sub>6</sub> alkyl chain with one double bond and one triple bond, or

C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with -OH or -NH<sub>2</sub>;  
or,

C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, or

R<sub>105</sub> and R'<sub>105</sub> together with the atom to which they are attached form a 3 to 7 membered carbocyclic ring, where one member is optionally a heteroatom selected from -O-, -S(O)<sub>0-2</sub>-, -N(R<sub>135</sub>)-, the ring being optionally substituted with 1, 2 or 3 independently selected R<sub>140</sub> groups;

R<sub>115</sub> at each occurrence is independently halogen, -OH, -CO<sub>2</sub>R<sub>102</sub>, -C<sub>1</sub>-C<sub>6</sub> thioalkoxy, -CO<sub>2</sub>-phenyl, -NR<sub>105</sub>R'<sub>135</sub>, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyl), -C(=O)R<sub>180</sub>, R<sub>180</sub>, -CONR<sub>105</sub>R'<sub>105</sub>, -SO<sub>2</sub>NR<sub>105</sub>R'<sub>105</sub>, -NH-CO-(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-C(=O)-OH, -NH-C(=O)-OR, -NH-C(=O)-O-phenyl, -O-C(=O)-(C<sub>1</sub>-C<sub>6</sub> alkyl), -O-C(=O)-amino, -O-C(=O)-mono- or dialkylamino, -O-C(=O)-phenyl, -O-(C<sub>1</sub>-C<sub>6</sub> alkyl)-CO<sub>2</sub>H, -NH-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>6</sub> alkyl), C<sub>1</sub>-C<sub>6</sub> alkoxy or C<sub>1</sub>-C<sub>6</sub> haloalkoxy;

R<sub>135</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(CH<sub>2</sub>)<sub>0-2</sub>-(aryl), -(CH<sub>2</sub>)<sub>0-2</sub>-(heteroaryl), or -(CH<sub>2</sub>)<sub>0-2</sub>-(heterocyclyl);

R<sub>140</sub> is heterocyclyl optionally substituted with 1, 2, 3, or 4 groups independently selected from C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, halogen, hydroxy, cyano, nitro, amino,

mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino, C<sub>2</sub>-C<sub>6</sub>  
alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub>  
haloalkoxy, amino(C<sub>1</sub>-C<sub>6</sub>)alkyl, mono(C<sub>1</sub>-  
C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-  
C<sub>6</sub>)alkyl, and =O;

R<sub>145</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl or CF<sub>3</sub>;

R<sub>150</sub> is hydrogen, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>2</sub> alkyl)-(C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl), C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> alkyl  
with one double bond and one triple bond, -R<sub>110</sub>, -  
R<sub>120</sub>, or

C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, 3, or 4  
groups independently selected from -OH, -NH<sub>2</sub>,  
C<sub>1</sub>-C<sub>3</sub> alkoxy, R<sub>110</sub>, and halogen;

R<sub>150'</sub> is C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>3</sub> alkyl)-(C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl), C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> alkyl  
with one double bond and one triple bond, -R<sub>110</sub>, -  
R<sub>120</sub>, or

C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, 3, or 4  
groups independently selected from -OH, -NH<sub>2</sub>,  
C<sub>1</sub>-C<sub>3</sub> alkoxy, R<sub>110</sub>, and halogen;

R<sub>155</sub> is C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>2</sub> alkyl)-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl),  
C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> alkyl with one  
double bond and one triple bond, -R<sub>110</sub>, -R<sub>120</sub>, or

C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, 3, or 4  
groups independently selected from -OH, -NH<sub>2</sub>,  
C<sub>1</sub>-C<sub>3</sub> alkoxy, and halogen;

R<sub>180</sub> is selected from morpholinyl, thiomorpholinyl,  
piperazinyl, piperidinyl, homomorpholinyl,  
homothiomorpholinyl, homothiomorpholinyl S-oxide,  
homothiomorpholinyl S,S-dioxide, pyrrolinyl and  
pyrrolidinyl, each of which is optionally  
substituted with 1, 2, 3, or 4 groups independently  
selected from C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, halogen,

hydroxy, cyano, nitro, amino, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, amino(C<sub>1</sub>-C<sub>6</sub>)alkyl, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, and =O;

R<sub>110</sub> is aryl optionally substituted with 1 or 2 R<sub>125</sub> groups;

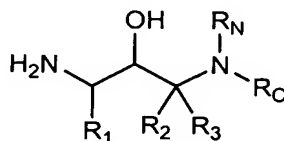
R<sub>125</sub> at each occurrence is independently halogen, amino, mono- or dialkylamino, -OH, -C≡N, -SO<sub>2</sub>-NH<sub>2</sub>, -SO<sub>2</sub>-NH-C<sub>1</sub>-C<sub>6</sub> alkyl, -SO<sub>2</sub>-N(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl), -CO-NH<sub>2</sub>, -CO-NH-C<sub>1</sub>-C<sub>6</sub> alkyl, or -CO-N(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>, or

C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl or C<sub>2</sub>-C<sub>6</sub> alkynyl, each of which is optionally substituted with 1, 2, or 3 groups that are independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, and mono- and dialkylamino, or C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with one, two or three of halogen;

R<sub>120</sub> is heteroaryl, which is optionally substituted with 1 or 2 R<sub>125</sub> groups; and

R<sub>130</sub> is heterocyclyl optionally substituted with 1 or 2 R<sub>125</sub> groups.

The invention also provides compounds of the formula I:



(I)

and pharmaceutically acceptable salts thereof, wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>C</sub> are as defined for formula (AA), and



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$R_N$  is  $-C(=O) - (CRR')_{0-6}R_{100}$ ,  $-C(=O) - (CRR')_{1-6}-O-R'_{100}$ ,  $-C(=O) - (CRR')_{1-6}-S-R'_{100}$ ,  $-C(=O) - (CRR')_{1-6}-C(=O)-R_{100}$ ,  
 $-C(=O) - (CRR')_{1-6}-SO_2-R_{100}$ ,  $-C(=O) - (CRR')_{1-6}-NR_{100}-R'_{100}$ ,  
 or

$R_N$  is 
$$\begin{array}{c} Y-Z-X \\ | \\ (CH_2)_{n_7}-CHC(O)- \\ | \\ R_4 \end{array}$$

wherein

$R_4$  is selected from the group consisting of H;  $NH_2$ ;  $-NH-$   
 $(CH_2)_{n_6}-R_{4-1}$ ;  $-NHR_8$ ;  $-NR_{50}C(O)R_5$ ;  $C_1-C_4$  alkyl- $NHC(O)R_5$ ;  
 $-(CH_2)_{0-4}R_8$ ;  $-O-C_1-C_4$  alkanoyl; OH;  $C_6-C_{10}$  aryloxy  
 optionally substituted with 1, 2, or 3 groups that  
 are independently halogen,  $C_1-C_4$  alkyl,  $-CO_2H$ ,  $-C(O)-$   
 $C_1-C_4$  alkoxy, or  $C_1-C_4$  alkoxy;  $C_1-C_6$  alkoxy; aryl  $C_1-C_4$   
 alkoxy;  $-NR_{50}CO_2R_{51}$ ;  $-C_1-C_4$  alkyl- $-NR_{50}CO_2R_{51}$ ;  $-C\equiv N$ ;  $-CF_3$ ;  
 $-CF_2-CF_3$ ;  $-C\equiv CH$ ;  $-CH_2-CH=CH_2$ ;  $-(CH_2)_{1-4}-R_{4-1}$ ;  $-(CH_2)_{1-4}-$   
 $NH-R_{4-1}$ ;  $-O-(CH_2)_{n_6}-R_{4-1}$ ;  $-S-(CH_2)_{n_6}-R_{4-1}$ ;  $-(CH_2)_{0-4}-$   
 $NHC(O)-(CH_2)_{0-6}-R_{52}$ ;  $-(CH_2)_{0-4}-R_{53}-(CH_2)_{0-4}-R_{54}$ ;

wherein

$n_6$  is 0, 1, 2, or 3;

$n_7$  is 0, 1, 2, or 3;

$R_{4-1}$  is selected from the group consisting of  $-SO_2-$   
 $(C_1-C_8$  alkyl),  $-SO-(C_1-C_8$  alkyl),  $-S-(C_1-C_8$   
 alkyl),  $-S-CO-(C_1-C_6$  alkyl),  $-SO_2-NR_{4-2}R_{4-3}$ ;  $-CO-$   
 $C_1-C_2$  alkyl;  $-CO-NR_{4-3}R_{4-4}$ ;

$R_{4-2}$  and  $R_{4-3}$  are independently H,  $C_1-C_3$  alkyl, or  $C_3-C_6$   
 cycloalkyl;

$R_{4-4}$  is alkyl, arylalkyl, alkanoyl, or arylalkanoyl;

$R_{4-6}$  is-H or  $C_1-C_6$  alkyl;

$R_5$  is selected from the group consisting of  $C_3-C_7$   
 cycloalkyl;  $C_1-C_6$  alkyl optionally substituted  
 with 1, 2, or 3 groups that are independently  
 halogen,  $-NR_6R_7$ ,  $C_1-C_4$  alkoxy,  $C_5-C_6$

heterocycloalkyl, C<sub>5</sub>-C<sub>6</sub> heteroaryl, C<sub>6</sub>-C<sub>10</sub> aryl, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, C<sub>1</sub>-C<sub>4</sub> alkyl, -S-C<sub>1</sub>-C<sub>4</sub> alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, -CO<sub>2</sub>H, -CONR<sub>6</sub>R<sub>7</sub>, -CO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>6</sub>-C<sub>10</sub> aryloxy; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>1</sub>-C<sub>4</sub> haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, or C<sub>2</sub>-C<sub>4</sub> alkanoyl; aryl optionally substituted with 1, 2, 3, or 4 groups that are independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl;

R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>10</sub> alkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>1</sub>-C<sub>6</sub> alkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

R<sub>9</sub> is aryl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;

R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>51</sub> is selected from the group consisting of aryl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, heteroaryl, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, or -C<sub>1</sub>-C<sub>4</sub> alkoxy; heterocycloalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, aryl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally substituted with 1, 2, or

3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); aryl; heterocycloalkyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl; and cycloalkylalkyl; wherein the aryl; heterocycloalkyl, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy;

R<sub>52</sub> is heterocycloalkyl, heteroaryl, aryl, cycloalkyl, -S(O)<sub>0-2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, CO<sub>2</sub>H, -C(O)NH<sub>2</sub>, -C(O)NH(alkyl), -C(O)N(alkyl)(alkyl), -CO<sub>2</sub>-alkyl, -NHS(O)<sub>0-2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, -N(alkyl)S(O)<sub>0-2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, -S(O)<sub>0-2</sub>-heteroaryl, -S(O)<sub>0-2</sub>-aryl, -NH(arylalkyl), -N(alkyl)(arylalkyl), thioalkoxy, or alkoxy, each of which is optionally substituted with 1, 2, 3, 4, or 5 groups that are independently alkyl, alkoxy, thioalkoxy, halogen, haloalkyl, haloalkoxy, alkanoyl, NO<sub>2</sub>, CN, alkoxycarbonyl, or aminocarbonyl;

R<sub>53</sub> is absent, -O-, -C(O)-, -NH-, -N(alkyl)-, -NH-S(O)<sub>0-2</sub>-, -N(alkyl)-S(O)<sub>0-2</sub>-, -S(O)<sub>0-2</sub>-NH-, -S(O)<sub>0-2</sub>-N(alkyl)-, -NH-C(S)-, or -N(alkyl)-C(S)-;

R<sub>54</sub> is heteroaryl, aryl, arylalkyl, heterocycloalkyl, CO<sub>2</sub>H, -CO<sub>2</sub>-alkyl, -C(O)NH(alkyl), -C(O)N(alkyl)(alkyl), -C(O)NH<sub>2</sub>, C<sub>1</sub>-C<sub>8</sub> alkyl, OH, aryloxy, alkoxy, arylalkoxy, NH<sub>2</sub>, NH(alkyl), N(alkyl)(alkyl), or -C<sub>1</sub>-C<sub>6</sub> alkyl-CO<sub>2</sub>-C<sub>1</sub>-C<sub>6</sub> alkyl, each of which is optionally substituted with 1, 2, 3, 4, or 5 groups that are independently alkyl, alkoxy, CO<sub>2</sub>H, -CO<sub>2</sub>-alkyl, thioalkoxy, halogen, haloalkyl, haloalkoxy, hydroxyalkyl, alkanoyl, NO<sub>2</sub>, CN, alkoxycarbonyl, or aminocarbonyl;

X is selected from the group consisting of -C<sub>1</sub>-C<sub>6</sub> alkylidenyl optionally optionally substituted with 1, 2, or 3 methyl groups; and -NR<sub>4-6</sub>-; or

R<sub>4</sub> and R<sub>4-6</sub> combine to form -(CH<sub>2</sub>)<sub>n10</sub>-, wherein

n<sub>10</sub> is 1, 2, 3, or 4;

Z is selected from the group consisting of a bond; SO<sub>2</sub>; SO; S; and C(O);

Y is selected from the group consisting of H; C<sub>1</sub>-C<sub>4</sub> haloalkyl; C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl; C<sub>6</sub>-C<sub>10</sub> aryl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from the group consisting of halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy; C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, and halogen; alkoxy; aryl optionally substituted with halogen, alkyl, alkoxy, CN or NO<sub>2</sub>; arylalkyl optionally substituted with halogen, alkyl, alkoxy, CN or NO<sub>2</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and

OH; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; or C<sub>3</sub>-C<sub>8</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl; or

Y<sub>1</sub>, Y<sub>2</sub> and the nitrogen to which they are attached form a ring selected from the group consisting of piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen;

R<sub>100</sub> and R'<sub>100</sub> independently represent aryl, heteroaryl, heterocyclyl, -aryl-W-aryl, -aryl-W-heteroaryl, -aryl-W-heterocyclyl, -heteroaryl-W-aryl, -heteroaryl-W-heteroaryl, -heteroaryl-W-heterocyclyl, -heterocyclyl-W-aryl, -heterocyclyl-W-heteroaryl, -heterocyclyl-W-heterocyclyl, -CH[(CH<sub>2</sub>)<sub>0-2</sub>-O-R<sub>150</sub>]- (CH<sub>2</sub>)<sub>0-2</sub>-aryl, -CH[(CH<sub>2</sub>)<sub>0-2</sub>-O-R<sub>150</sub>]- (CH<sub>2</sub>)<sub>0-2</sub>-heterocyclyl or -CH[(CH<sub>2</sub>)<sub>0-2</sub>-O-R<sub>150</sub>]- (CH<sub>2</sub>)<sub>0-2</sub>-heteroaryl, where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

-OR, -NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -C≡N, -OCF<sub>3</sub>, -CF<sub>3</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-P(=O)(OR)(OR'), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-(CH<sub>2</sub>)<sub>0-4</sub>-CONR<sub>102</sub>R'<sub>102</sub>', - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>12</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkenyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkynyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(CH<sub>2</sub>)<sub>0-4</sub>(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>120</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-O-R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO-(C<sub>1</sub>-C<sub>8</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>12</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(CH<sub>2</sub>)<sub>0-4</sub>-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-O-R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-

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$N(R_{150})-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-R_{105}$ ,  
 $-(CH_2)_{0-4}-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-R_{140}$ ,  $-(CH_2)_{0-4}-O-CO-$   
 $(C_1-C_6 \text{ alkyl})$ ,  $-(CH_2)_{0-4}-O-P(O)-(O-R_{110})_2$ ,  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  
 $-(CH_2)_{0-4}-O-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-O-(R_{150})$ ,  $-(CH_2)_{0-4}-O-R_{150}'-COOH$ ,  
 $-(CH_2)_{0-4}-S-(R_{150})$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-C_3-C_7$   
cycloalkyl,  $(C_2-C_{10})$ alkenyl, and  $(C_2-C_{10})$ alkynyl, or

$R_{100}$  is  $C_1-C_{10}$  alkyl optionally substituted with 1, 2, or 3  $R_{115}$  groups, or

$R_{100}$  is  $-(C_1-C_6 \text{ alkyl})-O-C_1-C_6 \text{ alkyl}$  or  $-(C_1-C_6 \text{ alkyl})-S-(C_1-C_6 \text{ alkyl})$ , each of which is optionally substituted with 1, 2, or 3  $R_{115}$  groups, or

$R_{100}$  is  $C_3-C_8$  cycloalkyl optionally substituted with 1, 2, or 3  $R_{115}$  groups;

$W$  is  $-(CH_2)_{0-4}-$ ,  $-O-$ ,  $-S(O)_{0-2}-$ ,  $-N(R_{135})-$ ,  $-CR(OH)-$  or  $-C(O)-$ ;

$R_{102}$  and  $R_{102}'$  independently are hydrogen, or

$C_1-C_{10}$  alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, aryl or  $-R_{110}$ ;

$R_{105}$  and  $R'_{105}$  independently represent  $-H$ ,  $-R_{110}$ ,  $-R_{120}$ ,  $C_3-C_7$  cycloalkyl,  $-(C_1-C_2 \text{ alkyl})-(C_3-C_7 \text{ cycloalkyl})$ ,  $-(C_1-C_6 \text{ alkyl})-O-(C_1-C_3 \text{ alkyl})$ ,  $C_2-C_6$  alkenyl,  $C_2-C_6$  alkynyl, or  $C_1-C_6$  alkyl chain with one double bond and one triple bond, or

$C_1-C_6$  alkyl optionally substituted with  $-OH$  or  $-NH_2$ ;  
or,

$C_1-C_6$  alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, or

$R_{105}$  and  $R'_{105}$  together with the atom to which they are attached form a 3 to 7 membered carbocyclic ring, where one member is optionally a heteratom selected

- from -O-, -S(O)<sub>0-2</sub>-, -N(R<sub>135</sub>)-, the ring being optionally substituted with 1, 2 or 3 independently selected R<sub>140</sub> groups;
- R<sub>115</sub> at each occurrence is independently halogen, -OH, -CO<sub>2</sub>R<sub>102</sub>, -C<sub>1</sub>-C<sub>6</sub> thioalkoxy, -CO<sub>2</sub>-phenyl, -NR<sub>105</sub>R'<sub>135</sub>, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyl), -C(=O)R<sub>180</sub>, R<sub>180</sub>, -CONR<sub>105</sub>R'<sub>105</sub>, -SO<sub>2</sub>NR<sub>105</sub>R'<sub>105</sub>, -NH-CO-(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-C(=O)-OH, -NH-C(=O)-OR, -NH-C(=O)-O-phenyl, -O-C(=O)-(C<sub>1</sub>-C<sub>6</sub> alkyl), -O-C(=O)-amino, -O-C(=O)-mono- or dialkylamino, -O-C(=O)-phenyl, -O-(C<sub>1</sub>-C<sub>6</sub> alkyl)-CO<sub>2</sub>H, -NH-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>6</sub> alkyl), C<sub>1</sub>-C<sub>6</sub> alkoxy or C<sub>1</sub>-C<sub>6</sub> haloalkoxy;
- R<sub>135</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(CH<sub>2</sub>)<sub>0-2</sub>-(aryl), -(CH<sub>2</sub>)<sub>0-2</sub>-(heteroaryl), or -(CH<sub>2</sub>)<sub>0-2</sub>-(heterocyclyl);
- R<sub>140</sub> is heterocyclyl optionally substituted with 1, 2, 3, or 4 groups independently selected from C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, halogen, hydroxy, cyano, nitro, amino, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, amino(C<sub>1</sub>-C<sub>6</sub>)alkyl, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, and =O;
- R<sub>145</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl or CF<sub>3</sub>;
- R<sub>150</sub> is hydrogen, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>2</sub> alkyl)-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> alkyl with one double bond and one triple bond, -R<sub>110</sub>, -R<sub>120</sub>, or C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, 3, or 4 groups independently selected from -OH, -NH<sub>2</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, R<sub>110</sub>, and halogen;
- R<sub>150'</sub> is C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>3</sub> alkyl)-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, C<sub>1</sub>-C<sub>6</sub> alkyl

- with one double bond and one triple bond,  $-R_{110}$ ,  $-R_{120}$ , or  
 $C_1-C_6$  alkyl optionally substituted with 1, 2, 3, or 4  
groups independently selected from  $-OH$ ,  $-NH_2$ ,  
 $C_1-C_3$  alkoxy,  $R_{110}$ , and halogen;
- $R_{155}$  is  $C_3-C_7$  cycloalkyl,  $-(C_1-C_2 \text{ alkyl})-(C_3-C_7 \text{ cycloalkyl})$ ,  
 $C_2-C_6$  alkenyl,  $C_2-C_6$  alkynyl,  $C_1-C_6$  alkyl with one  
double bond and one triple bond,  $-R_{110}$ ,  $-R_{120}$ , or  
 $C_1-C_6$  alkyl optionally substituted with 1, 2, 3, or 4  
groups independently selected from  $-OH$ ,  $-NH_2$ ,  
 $C_1-C_3$  alkoxy, and halogen;
- $R_{180}$  is selected from morpholinyl, thiomorpholinyl,  
piperazinyl, piperidinyl, homomorpholinyl,  
homothiomorpholinyl, homothiomorpholinyl S-oxide,  
homothiomorpholinyl S,S-dioxide, pyrrolinyl and  
pyrrolidinyl, each of which is optionally  
substituted with 1, 2, 3, or 4 groups independently  
selected from  $C_1-C_6$  alkyl,  $C_1-C_6$  alkoxy, halogen,  
hydroxy, cyano, nitro, amino, mono( $C_1-C_6$ )alkylamino,  
di( $C_1-C_6$ )alkylamino,  $C_2-C_6$  alkenyl,  $C_2-C_6$  alkynyl,  $C_1-$   
 $C_6$  haloalkyl,  $C_1-C_6$  haloalkoxy, amino( $C_1-C_6$ )alkyl,  
mono( $C_1-C_6$ )alkylamino( $C_1-C_6$ )alkyl, di( $C_1-$   
 $C_6$ )alkylamino( $C_1-C_6$ )alkyl, and  $=O$ ;
- $R_{110}$  is aryl optionally substituted with 1 or 2  $R_{125}$   
groups;
- $R_{125}$  at each occurrence is independently halogen, amino,  
mono- or dialkylamino,  $-OH$ ,  $-C\equiv N$ ,  $-SO_2-NH_2$ ,  $-SO_2-NH-$   
 $C_1-C_6$  alkyl,  $-SO_2-N(C_1-C_6 \text{ alkyl})_2$ ,  $-SO_2-(C_1-C_4 \text{ alkyl})$ ,  
 $-CO-NH_2$ ,  $-CO-NH-C_1-C_6 \text{ alkyl}$ , or  $-CO-N(C_1-C_6 \text{ alkyl})_2$ ,  
or  
 $C_1-C_6$  alkyl,  $C_2-C_6$  alkenyl or  $C_2-C_6$  alkynyl, each of  
which is optionally substituted with 1, 2, or 3  
groups that are independently selected from  $C_1-$

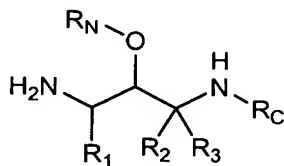


C<sub>3</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, and mono- and dialkylamino, or C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with one, two or three of halogen;

R<sub>120</sub> is heteroaryl, which is optionally substituted with 1 or 2 R<sub>125</sub> groups; and

R<sub>130</sub> is heterocyclyl optionally substituted with 1 or 2 R<sub>125</sub> groups.

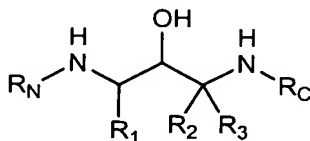
The invention also provides compounds of the formula X:



(X)

and pharmaceutically acceptable salts thereof, wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>N</sub> and R<sub>C</sub> are as defined for formula (I).

The invention also provides methods of generating compounds of formula (Y) from the compounds of formulae (AA), (I) or (X):



(Y)

wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>N</sub> and R<sub>C</sub> are as defined for formula (I). The generation of compounds of formula (Y) from compounds of formulae (AA), (I) or (X) can occur *in vivo* or *in vitro*. Compounds of formula Y are useful for treating and/or preventing Alzheimer's disease.

The invention also provides processes for converting compounds of formula AA, I or X to the compounds of

formula Y. The conversion and/or generation of compounds of formula Y involves contacting the compounds of formula I and/or X with an aqueous medium. The conversion can occur *in vitro* or *in vivo*.

The invention also provides methods for the treatment or prevention of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, other degenerative dementias, dementias of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, diffuse Lewy body type of Alzheimer's disease comprising administration of a therapeutically effective amount of a compound or salt of formula AA, I or X, to a patient in need thereof.

Preferably, the patient is a human.

More preferably, the disease is Alzheimer's disease.

More preferably, the disease is dementia.

The invention also provides pharmaceutical compositions comprising a compound or salt of formula AA, I or X and at least one pharmaceutically acceptable carrier, solvent, adjuvant or diluent.

The invention also provides the use of a compound or salt according to formula AA, I or X for the manufacture of a medicament.

The invention also provides the use of a compound or salt of formula (AA), formula (I) or formula (X) for the treatment or prevention of Alzheimer's disease, mild cognitive impairment Down's syndrome, Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, cerebral amyloid angiopathy, other degenerative dementias,

dementias of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, or diffuse Lewy body type of Alzheimer's disease.

The invention also provides compounds, pharmaceutical compositions, kits, and methods for inhibiting beta-secretase-mediated cleavage of amyloid precursor protein (APP). More particularly, the compounds, compositions, and methods of the invention are effective to inhibit the production of A-beta peptide and to treat or prevent any human or veterinary disease or condition associated with a pathological form of A-beta peptide.

The invention also provides methods of preparing the compounds of the invention and the intermediates used in those methods.

The compounds, compositions, and methods of the invention are useful for treating humans who have Alzheimer's Disease (AD), for helping prevent or delay the onset of AD, for treating patients with mild cognitive impairment (MCI), and preventing or delaying the onset of AD in those patients who would otherwise be expected to progress from MCI to AD, for treating Down's syndrome, for treating Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch Type, for treating cerebral beta-amyloid angiopathy and preventing its potential consequences such as single and recurrent lobar hemorrhages, for treating other degenerative dementias, including dementias of mixed vascular and degenerative origin, for treating dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical

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basal degeneration, and diffuse Lewy body type AD, and for treating frontotemporal dementias with parkinsonism (FTDP).

The compounds of formula Y possess beta-secretase inhibitory activity. The inhibitory activities of the compounds of the invention is readily demonstrated, for example, using one or more of the assays described herein or known in the art.

Unless the substituents for a particular formula are expressly defined for that formula, they are understood to carry the definitions set forth in connection with the preceding formula to which the particular formula makes reference.

DETAILED DESCRIPTION OF THE INVENTION

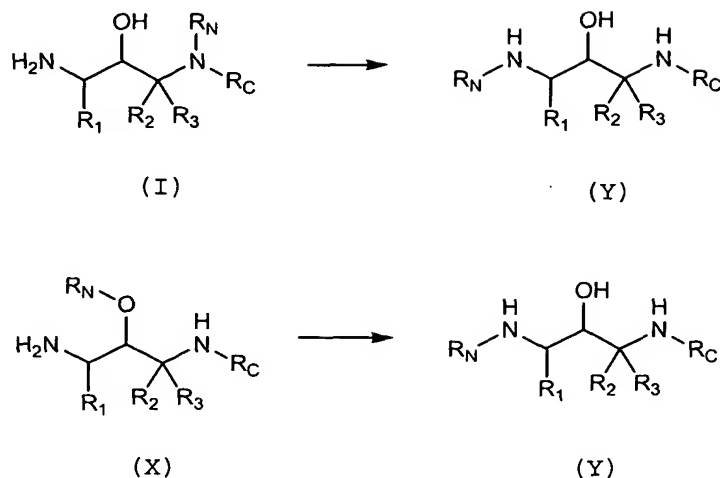
As noted above, the invention provides compounds of formulae (AA), (I) and (X) that are useful in the treatment and prevention of Alzheimer's disease. These compounds can be viewed as prodrugs of the active compounds of Formula Y since they generate the active compound both in vivo and in vitro.

The compounds of formula AA, I and X undergo acyl group migration of the  $R_N$  group when in contact with water, as depicted in Scheme I. The migration associated with compounds of formula (I) is referred to herein as "N-acyl migration." The migration associated with compounds of formula (X) is referred to herein as "O-acyl migration."

The migrations depicted in SCHEME 1 can occur either in vitro or in vivo and occur when the compounds are contacted with aqueous media, including water itself. The aqueous medium can be neutral, acidic or basic. It is preferred that the media have a pH of about 2 to about 10, more preferably, about 3 to about 7. The amount of water required for the migration is not critical. A catalytic amount of aqueous media will suffice to cause the migration. Aqueous buffer solutions as well as gastric fluid are satisfactory media for the migration to occur.

The products of the rearrangements of the compounds of formula AA, formula I and/or formula X are the compounds of formula (Y). The substituents  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_N$  and  $R_C$  in the compounds (Y) are as defined above for compounds of formula (I).

SCHEME 1



Preferred compounds of formula AA include those of formula AA-1, i.e., compounds of formula AA wherein

$R_1$  is aryl, heteroaryl, heterocyclyl,  $-C_1-C_6$  alkyl-aryl,  $-C_1-C_6$  alkyl-heteroaryl, or  $-C_1-C_6$  alkyl-heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen,  $-OH$ ,  $-SH$ ,  $-C\equiv N$ ,  $-NO_2$ ,  $-NR_{105}R'_{105}$ ,  $-CO_2R$ ,  $-N(R)COR'$ , or  $-N(R)SO_2R'$ ,  $-C(=O)-(C_1-C_4)$  alkyl,  $-SO_2$ -amino,  $-SO_2$ -mono or dialkylamino,  $-C(=O)$ -amino,  $-C(=O)$ -mono or dialkylamino,  $-SO_2-(C_1-C_4)$  alkyl, or

$C_1-C_6$  alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or

$C_3-C_7$  cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen,  $-OH$ ,  $-SH$ ,  $-C\equiv N$ ,  $-CF_3$ ,  $C_1-C_3$  alkoxy, amino,  $-C_1-C_6$  alkyl and mono- or dialkylamino, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula AA-1 also include those wherein

R<sub>1</sub> is -C<sub>1</sub>-C<sub>6</sub> alkyl-aryl, -C<sub>1</sub>-C<sub>6</sub> alkyl-heteroaryl, or -C<sub>1</sub>-C<sub>6</sub> alkyl-heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, -OH, -SH, -C≡N, -NO<sub>2</sub>, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -N(R)COR', or -N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl, -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or

C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or

C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula AA-1 further include those wherein

R<sub>1</sub> is -(CH<sub>2</sub>)-aryl, -(CH<sub>2</sub>)-heteroaryl, or -(CH<sub>2</sub>)-

heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, -OH, -SH, -C≡N, -NO<sub>2</sub>, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -N(R)COR', or -N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl, -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or

C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or

C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or



C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula AA-1 also include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl or -CH<sub>2</sub>-pyridinyl where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, hydroxy, -NO<sub>2</sub>, and

C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1, 2, or 3 substituents independently selected from halogen, OH, SH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), C≡N, CF<sub>3</sub>.

Preferred compounds of formula AA-1 further include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl or -CH<sub>2</sub>-pyridinyl where the phenyl or pyridinyl rings are each optionally substituted with 1 or 2 groups independently selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>2</sub> alkoxy, hydroxy, -CF<sub>3</sub>, and -NO<sub>2</sub>.

Preferred compounds of formula AA-1 include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl where the phenyl ring is optionally substituted with 2 groups independently selected

from halogen, C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>2</sub> alkoxy, hydroxy, and -NO<sub>2</sub>.

Preferred compounds of formula AA-1 also include those wherein R<sub>1</sub> is benzyl, or 3,5-difluorobenzyl.

Preferred compounds of formula AA and AA-1 include those of formula AA-2, i.e., compounds of formula AA or AA-1 wherein

R<sub>2</sub> and R<sub>3</sub> are independently selected from H or C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of C<sub>1</sub>-C<sub>3</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, and -NR<sub>1-a</sub>R<sub>1-b</sub>.

Preferred compounds of formula AA-2 include those wherein

R<sub>C</sub> is selected from the group consisting of C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -OC=ONR<sub>235</sub>R<sub>240</sub>, -S(=O)<sub>0-2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -SH, -NR<sub>235</sub>C=ONR<sub>235</sub>R<sub>240</sub>, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>8</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -CO<sub>2</sub>H, and -CO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-aryl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heteroaryl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heterocycloalkyl; -[C(R<sub>255</sub>)(R<sub>260</sub>)]<sub>1-3</sub>-CO-N-(R<sub>255</sub>)<sub>2</sub>; -CH(aryl)<sub>2</sub>; -CH(heteroaryl)<sub>2</sub>; -CH(heterocycloalkyl)<sub>2</sub>; -CH(aryl)(heteroaryl); -CO-NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-1</sub>-CH((CH<sub>2</sub>)<sub>0-6</sub>-OH)-(CH<sub>2</sub>)<sub>0-1</sub>-aryl; -(CH<sub>2</sub>)<sub>0-1</sub>-CHR<sub>C-6</sub>-(CH<sub>2</sub>)<sub>0-1</sub>-heteroaryl; -CH(-aryl or -heteroaryl)-CO-O(C<sub>1</sub>-C<sub>4</sub> alkyl); -CH(-CH<sub>2</sub>-OH)-CH(OH)-phenyl-NO<sub>2</sub>; (C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>6</sub> alkyl)-OH; -CH<sub>2</sub>-NH-CH<sub>2</sub>-CH(-O-CH<sub>2</sub>-CH<sub>3</sub>)<sub>2</sub>; -H; and -(CH<sub>2</sub>)<sub>0-6</sub>-C(=NR<sub>235</sub>)(NR<sub>235</sub>R<sub>240</sub>); wherein

each aryl is optionally substituted with 1, 2, or 3  
R<sub>200</sub>;

each heteroaryl is optionally substituted with 1, 2,  
3, or 4 R<sub>200</sub>;

each heterocycloalkyl is optionally substituted with  
1, 2, 3, or 4 R<sub>210</sub>;

R<sub>200</sub> at each occurrence is independently selected  
from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl  
optionally substituted with 1, 2, or 3 R<sub>205</sub>  
groups; OH; -NO<sub>2</sub>; halogen; -CO<sub>2</sub>H; C≡N; -(CH<sub>2</sub>)<sub>0-4</sub>-  
CO-NR<sub>220</sub>R<sub>225</sub>; -(CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>12</sub> alkyl); -(CH<sub>2</sub>)<sub>0-4</sub>-  
CO<sub>2</sub>R<sub>215</sub>; and -(CH<sub>2</sub>)<sub>0-4</sub>-O-(C<sub>1</sub>-C<sub>6</sub> alkyl optionally  
substituted with 1, 2, 3, or 5 -F);

wherein each aryl group at each occurrence is  
optionally substituted with 1, 2, or 3  
groups that are independently R<sub>205</sub>, R<sub>210</sub> or  
C<sub>1</sub>-C<sub>6</sub> alkyl substituted with 1, 2, or 3  
groups that are independently R<sub>205</sub> or R<sub>210</sub>;

wherein each heterocycloalkyl group at each  
occurrence is optionally substituted with  
1, 2, or 3 groups that are independently  
R<sub>210</sub>;

wherein each heteroaryl group at each  
occurrence is optionally substituted with  
1, 2, or 3 groups that are independently  
R<sub>205</sub>, R<sub>210</sub>, or C<sub>1</sub>-C<sub>6</sub> alkyl substituted with  
1, 2, or 3 groups that are independently  
R<sub>205</sub> or R<sub>210</sub>;

R<sub>205</sub> at each occurrence is independently selected  
from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl,  
halogen, -OH, -O-phenyl, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>6</sub>  
alkoxy, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), and N-(C<sub>1</sub>-C<sub>6</sub>  
alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl);

R<sub>210</sub> at each occurrence is independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkoxy; -NR<sub>220</sub>R<sub>225</sub>; OH; C≡N; C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); -SO<sub>2</sub>-NR<sub>235</sub>R<sub>240</sub>; -CO-NR<sub>235</sub>R<sub>240</sub>; -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); and =O; wherein

R<sub>215</sub> at each occurrence is independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl, -(CH<sub>2</sub>)<sub>0-2</sub>-(aryl), C<sub>3</sub>-C<sub>7</sub> cycloalkyl, and -(CH<sub>2</sub>)<sub>0-2</sub>-(heteroaryl), -(CH<sub>2</sub>)<sub>0-2</sub>-(heterocycloalkyl); wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 groups that are independently R<sub>205</sub> or R<sub>210</sub>; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>210</sub>; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>210</sub>;

R<sub>220</sub> and R<sub>225</sub> at each occurrence are independently selected from the group consisting of -H, -C<sub>1</sub>-C<sub>6</sub> alkyl, hydroxy C<sub>1</sub>-C<sub>6</sub> alkyl, amino C<sub>1</sub>-C<sub>6</sub> alkyl; halo C<sub>1</sub>-C<sub>6</sub> alkyl; -C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>3</sub> alkyl), -aryl, -heteroaryl, and -heterocycloalkyl; wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>270</sub> groups, each heteroaryl is optionally substituted with 1, 2, 3, or 4 R<sub>200</sub>, each heterocycloalkyl is optionally substituted with 1, 2, 3, or 4 R<sub>210</sub> wherein

R<sub>270</sub> at each occurrence is independently R<sub>205</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3

R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkoxy; NR<sub>235</sub>R<sub>240</sub>; OH; C≡N; -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); and =O; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>205</sub> groups;

R<sub>235</sub> and R<sub>240</sub> at each occurrence are independently H, or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, 6, or 7 carbon atoms, wherein the carbocycle is optionally substituted with 1 or 2 groups that are independently OH, methyl, Cl, F, OCH<sub>3</sub>, CF<sub>3</sub>, NO<sub>2</sub>, or CN;

R<sub>255</sub> and R<sub>260</sub> at each occurrence are independently selected from the group consisting of H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; -(CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; -(C<sub>1</sub>-C<sub>4</sub> alkyl)-aryl; -(C<sub>1</sub>-C<sub>4</sub> alkyl)-heteroaryl; -(C<sub>1</sub>-C<sub>4</sub> alkyl)-heterocycloalkyl; aryl; heteroaryl; heterocycloalkyl; -(CH<sub>2</sub>)<sub>1-4</sub>-R<sub>265</sub>-(CH<sub>2</sub>)<sub>0-4</sub>-aryl; -(CH<sub>2</sub>)<sub>1-4</sub>-R<sub>265</sub>-(CH<sub>2</sub>)<sub>0-4</sub>-heteroaryl; and; -(CH<sub>2</sub>)<sub>1-4</sub>-R<sub>265</sub>-(CH<sub>2</sub>)<sub>0-4</sub>-heterocycloalkyl; wherein

R<sub>265</sub> at each occurrence is independently -O-, -S- or -N(C<sub>1</sub>-C<sub>6</sub> alkyl)-;

each aryl or phenyl is optionally substituted with 1, 2, or 3 groups that are

independently  $R_{205}$ ,  $R_{210}$ , or  $C_1-C_6$  alkyl substituted with 1, 2, or 3 groups that are independently  $R_{205}$  or  $R_{210}$ .

Preferred compounds of formula AA-2 include those wherein:

$R_C$  is  $-(CR_{245}R_{250})_{0-4}$ -aryl, or  $-(CR_{245}R_{250})_{0-4}$ -heteroaryl, wherein aryl and heteroaryl are optionally substituted with 1, 2, or 3  $R_{200}$  groups.

Preferred compounds of formula AA-2 also include compounds wherein

$R_C$  is  $-(CR_{245}R_{250})$ -aryl, or  $-(CR_{245}R_{250})$ -heteroaryl wherein each aryl and heteroaryl is optionally substituted with 1, 2, or 3  $R_{200}$  groups.

Preferred compounds of formula AA-2 also include compounds wherein

$R_C$  is  $-(CH_2)$ -aryl, or  $-(CH_2)$ -heteroaryl, wherein each aryl and heteroaryl is optionally substituted with 1, 2, or 3 groups selected from OH,  $-NO_2$ , halogen,  $-CO_2H$ ,  $C\equiv N$ ,  $-(CH_2)_{0-4}-CO-NR_{220}R_{225}$ ,  $-(CH_2)_{0-4}-CO-(C_1-C_{12}$  alkyl), and  $-(CH_2)_{0-4}-SO_2-NR_{220}R_{225}$ .

Preferred compounds of formula AA-2 also include compounds wherein

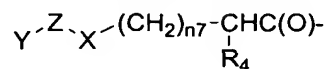
$R_C$  is  $-(CH_2)$ -aryl, wherein aryl is optionally substituted with 1, 2, or 3 groups selected from OH,  $-NO_2$ , halogen,  $-CO_2H$ , and  $C\equiv N$ .

Preferred compounds of formula AA-2 also include compounds wherein

$R_C$  is  $-(CH_2)$ -phenyl, wherein phenyl is optionally substituted with 1, 2, or 3 groups selected from OH,  $-NO_2$ , halogen,  $-CO_2H$ , and  $C\equiv N$ .

Preferred compounds of formula AA-2 also include compounds wherein  $R_C$  is benzyl.

Other preferred compounds of formulas AA, AA-1 and AA-2 include compounds of formula AA-3, i.e., those of formulas AA, AA-1 or AA-2 wherein one of  $R_N$  and  $R_{N'}$  is hydrogen and the other is:



wherein

$R_4$  is  $NH_2$ ;  $-NH-(CH_2)_{n6}-R_{4-1}$ ;  $-NHR_8$ ;  $-NR_{50}C(O)R_5$ ; or  $-NR_{50}CO_2R_{51}$ ;

wherein

$n_6$  is 0, 1, 2, or 3;

$n_7$  is 0, 1, 2, or 3;

$R_{4-1}$  is selected from the group consisting of  $-SO_2-$  (C<sub>1</sub>-C<sub>8</sub> alkyl),  $-SO-$  (C<sub>1</sub>-C<sub>8</sub> alkyl),  $-S-$  (C<sub>1</sub>-C<sub>8</sub> alkyl),  $-S-CO-$  (C<sub>1</sub>-C<sub>6</sub> alkyl),  $-SO_2-NR_{4-2}R_{4-3}$ ;  $-CO-C_1-C_2$  alkyl;  $-CO-NR_{4-3}R_{4-4}$ ;

$R_{4-2}$  and  $R_{4-3}$  are independently H, C<sub>1</sub>-C<sub>3</sub> alkyl, or C<sub>3</sub>-C<sub>6</sub> cycloalkyl;

$R_{4-4}$  is alkyl, phenylalkyl, C<sub>2</sub>-C<sub>4</sub> alkanoyl, or phenylalkanoyl;

$R_5$  is cyclopropyl; cyclobutyl; cyclopentyl; and cyclohexyl; wherein each cycloalkyl group is optionally substituted with one or two groups that are C<sub>1</sub>-C<sub>6</sub> alkyl, more preferably C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, more preferably C<sub>1</sub>-C<sub>2</sub> alkoxy, CF<sub>3</sub>, OH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), halogen, CN, or NO<sub>2</sub>; or the cycloalkyl group is substituted with 1 or 2 groups that are independently CF<sub>3</sub>, Cl, F, methyl, ethyl or cyano; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen,  $-NR_6R_7$ , C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>6</sub> heteroaryl, phenyl, C<sub>3</sub>-C<sub>7</sub>

cycloalkyl, -S-C<sub>1</sub>-C<sub>4</sub> alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, -CO<sub>2</sub>H, -CONR<sub>6</sub>R<sub>7</sub>, -CO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, or phenyloxy; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>1</sub>-C<sub>4</sub> haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, or C<sub>2</sub>-C<sub>4</sub> alkanoyl; phenyl optionally substituted with 1, 2, 3, or 4 groups that are independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein

R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, and phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl or halogen;, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

R<sub>9</sub> is phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;  
R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

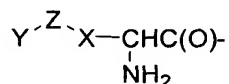
R<sub>51</sub> is selected from the group consisting of phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> or -C<sub>1</sub>-C<sub>4</sub> alkoxy; heterocycloalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; heterocycloalkylalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen,



C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl, wherein the phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy.

Preferred compounds of formula AA-3 include compounds wherein

one of R<sub>N</sub> and R<sub>N'</sub> is hydrogen and the other is



wherein

X is C<sub>1</sub>-C<sub>4</sub> alkylidenyl optionally substituted with 1, 2, or 3 methyl groups; or -NR<sub>4-6</sub>-; or

R<sub>4</sub> and R<sub>4-6</sub> combine to form -(CH<sub>2</sub>)<sub>n10</sub>-, wherein

n<sub>10</sub> is 1, 2, 3, or 4;

Z is selected from a bond; SO<sub>2</sub>; SO; S; and C(O);

Y is selected from H; C<sub>1</sub>-C<sub>4</sub> haloalkyl; C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl containing at least one N, O, or S; phenyl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally

substituted with 1 thru 3 substituents which can be the same or different and are selected from halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy; C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, and halogen; alkoxy; phenyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; and C<sub>3</sub>-C<sub>8</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula AA-3 include compounds wherein

X is C<sub>1</sub>-C<sub>4</sub> alkylidenyl optionally optionally substituted with 1, 2, or 3 methyl groups;

Z is selected from SO<sub>2</sub>; SO; S; and C(O);

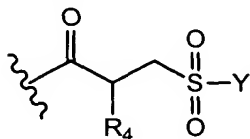
Y is selected from H; C<sub>1</sub>-C<sub>4</sub> haloalkyl; C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl containing at least one N, O, or S; phenyl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from the group consisting of halogen, hydroxy, alkoxy,

thioalkoxy, and haloalkoxy; C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, and halogen; alkoxy; phenyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; or C<sub>3</sub>-C<sub>8</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula AA-3 include compounds one of R<sub>N</sub> and R<sub>N'</sub> is hydrogen and the other is:



wherein R<sub>4</sub> is NH<sub>2</sub>; -NH-(CH<sub>2</sub>)<sub>n<sub>6</sub></sub>-R<sub>4-1</sub>; -NHR<sub>8</sub>; -NR<sub>50</sub>C(O)R<sub>5</sub>; or -NR<sub>50</sub>CO<sub>2</sub>R<sub>51</sub> wherein

n<sub>6</sub> is 0, 1, 2, or 3;

n<sub>7</sub> is 0, 1, 2, or 3;

R<sub>4-1</sub> is selected from the group consisting of -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyl), -SO-(C<sub>1</sub>-C<sub>8</sub> alkyl), -S-(C<sub>1</sub>-C<sub>8</sub>

alkyl), -S-CO-(C<sub>1</sub>-C<sub>6</sub> alkyl), -SO<sub>2</sub>-NR<sub>4-2</sub>R<sub>4-3</sub>; -CO-C<sub>1</sub>-C<sub>2</sub> alkyl; -CO-NR<sub>4-3</sub>R<sub>4-4</sub>;

R<sub>4-2</sub> and R<sub>4-3</sub> are independently H, C<sub>1</sub>-C<sub>3</sub> alkyl, or C<sub>3</sub>-C<sub>6</sub> cycloalkyl;

R<sub>4-4</sub> is alkyl, phenylalkyl, C<sub>2</sub>-C<sub>4</sub> alkanoyl, or phenylalkanoyl;

R<sub>5</sub> is cyclopropyl; cyclobutyl; cyclopentyl; or cyclohexyl; wherein each cycloalkyl group is optionally substituted with one or two groups that are C<sub>1</sub>-C<sub>6</sub> alkyl, more preferably C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, more preferably C<sub>1</sub>-C<sub>2</sub> alkoxy, CF<sub>3</sub>, OH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), halogen, CN, or NO<sub>2</sub>; or the cycloalkyl group is substituted with 1 or 2 groups that are independently CF<sub>3</sub>, Cl, F, methyl, ethyl or cyano; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, -NR<sub>6</sub>R<sub>7</sub>, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>6</sub> heteroaryl, phenyl, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -S-C<sub>1</sub>-C<sub>4</sub> alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, -CO<sub>2</sub>H, -CONR<sub>6</sub>R<sub>7</sub>, -CO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, or phenyloxy; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>1</sub>-C<sub>4</sub> haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, or C<sub>2</sub>-C<sub>4</sub> alkanoyl; phenyl optionally substituted with 1, 2, 3, or 4 groups that are independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein

R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, and phenyl C<sub>1</sub>-C<sub>4</sub> alkyl;  
R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl or halogen;, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

R<sub>9</sub> is phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;  
R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl; and

R<sub>51</sub> is selected from the group consisting of phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> or -C<sub>1</sub>-C<sub>4</sub> alkoxy; heterocycloalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; heterocycloalkylalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl, wherein the phenyl; C<sub>3</sub>-C<sub>8</sub>

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cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy; and

Y is C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy.

Preferred compounds of formula AA-3 further include compounds wherein

R<sub>C</sub> is C<sub>1</sub>-C<sub>8</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -OC=ONR<sub>235</sub>R<sub>240</sub>, -S(=O)<sub>0-2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -SH, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>8</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -CO<sub>2</sub>H, and -CO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-phenyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heteroaryl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heterocycloalkyl; -(CH<sub>2</sub>)<sub>0-1</sub>-CH((CH<sub>2</sub>)<sub>0-4</sub>-OH)-(CH<sub>2</sub>)<sub>0-1</sub>-phenyl; -(CH<sub>2</sub>)<sub>0-1</sub>-CHR<sub>C-6</sub>-(CH<sub>2</sub>)<sub>0-1</sub>-heteroaryl; -CH(-CH<sub>2</sub>-OH)-CH(OH)-phenyl-NO<sub>2</sub>; (C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>6</sub> alkyl)-OH; or -(CH<sub>2</sub>)<sub>0-6</sub>-C(=NR<sub>235</sub>)(NR<sub>235</sub>R<sub>240</sub>); wherein

each aryl is optionally substituted with 1, 2, or 3 R<sub>200</sub>;  
each heteroaryl is optionally substituted with 1, 2, 3, or 4 R<sub>200</sub>;

each heterocycloalkyl is optionally substituted with  
1, 2, 3, or 4  $R_{210}$ ;

$R_{200}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl  
optionally substituted with 1, 2, or 3  $R_{205}$   
groups; OH;  $-NO_2$ ; halogen;  $-CO_2H$ ;  $C\equiv N$ ;  $-(CH_2)_{0-4}$ -  
 $CO-NR_{220}R_{225}$ ;  $-(CH_2)_{0-4}-CO-(C_1-C_{12}$  alkyl);  $-(CH_2)_{0-4}$ -  
 $CO_2R_{215}$ ; or  $-(CH_2)_{0-4}-O-(C_1-C_6$  alkyl optionally  
substituted with 1, 2, 3, or 5 -F);

$R_{205}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl,  
halogen, -OH, -O-phenyl, -SH,  $-C\equiv N$ ,  $-CF_3$ ,  $C_1$ - $C_6$   
alkoxy,  $NH_2$ ,  $NH(C_1-C_6$  alkyl), or  $N-(C_1-C_6$   
alkyl)( $C_1-C_6$  alkyl);

$R_{210}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl  
optionally substituted with 1, 2, or 3  $R_{205}$   
groups; halogen;  $C_1$ - $C_6$  alkoxy;  $C_1$ - $C_6$  haloalkoxy;  
 $-NR_{220}R_{225}$ ; OH;  $C\equiv N$ ;  $C_3$ - $C_7$  cycloalkyl optionally  
substituted with 1, 2, or 3  $R_{205}$  groups;  $-CO-(C_1$ -  
 $C_4$  alkyl);  $-SO_2-NR_{235}R_{240}$ ;  $-CO-NR_{235}R_{240}$ ;  $-SO_2-(C_1-C_4$   
alkyl); and =O; wherein

$R_{215}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl,  
 $-(CH_2)_{0-2}-(phenyl)$ ,  $C_3$ - $C_7$  cycloalkyl, and  $-(CH_2)_{0-2}$ -  
 $-(heteroaryl)$ ,  $-(CH_2)_{0-2}-(heterocycloalkyl)$ ;  
wherein the phenyl group at each occurrence is  
optionally substituted with 1, 2, or 3 groups  
that are independently  $R_{205}$  or  $R_{210}$ ; wherein the  
heterocycloalkyl group at each occurrence is  
optionally substituted with 1, 2, or 3  $R_{210}$ ;  
wherein each heteroaryl group at each  
occurrence is optionally substituted with 1, 2,  
or 3  $R_{210}$ ;

$R_{220}$  and  $R_{225}$  at each occurrence are independently -H,  
 $-C_1$ - $C_6$  alkyl, hydroxy  $C_1$ - $C_6$  alkyl, halo  $C_1$ - $C_6$

alkyl; -C<sub>3</sub>-C<sub>7</sub> cycloalkyl, and -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>3</sub> alkyl);

R<sub>235</sub> and R<sub>240</sub> at each occurrence are independently H, or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently H, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, 6, or 7 carbon atoms.

Preferred compounds of formula AA-3 include compounds wherein

R<sub>1</sub> is benzyl which is optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, hydroxy, and C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1, 2, or 3 substituents halogen, OH, SH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), C≡N, CF<sub>3</sub>;

R<sub>2</sub> and R<sub>3</sub> are independently selected from H or C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 substituent selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), and NH(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl);

R<sub>C</sub> is C<sub>1</sub>-C<sub>8</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from R<sub>205</sub>, -SH, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>6</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from R<sub>205</sub>, -CO<sub>2</sub>H, and -CO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-phenyl optionally substituted with 1, 2, or 3 R<sub>200</sub>; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyridyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyridazinyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrimidinyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrazinyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-furyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-indolyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-thienyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrrolyl;



- (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrazolyl; (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-benzoxazolyl;  
- (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-imidazolyl; each of the above  
heteroaryl groups is optionally substituted with 1,  
2, 3, or 4 R<sub>200</sub>; - (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-imidazolidinyl;  
(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-tetrahydrofuryl; (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-  
tetrahydropyranyl; (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-piperazinyl;  
(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrrolidinyl; (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-piperidinyl;  
(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-indolinyl; each of the above  
heterocycloalkyl groups is optionally substituted  
with 1, 2, 3, or 4 R<sub>210</sub>; (CH<sub>2</sub>)<sub>0-1</sub>-CH((CH<sub>2</sub>)<sub>0-4</sub>-OH)-(CH<sub>2</sub>)<sub>0-1</sub>-phenyl;  
- (CH<sub>2</sub>)<sub>0-1</sub>-CH(C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl)-(CH<sub>2</sub>)<sub>0-1</sub>-pyridyl;

R<sub>200</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; OH; -NO<sub>2</sub>; halogen; -CO<sub>2</sub>H; C≡N; -(CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>220</sub>R<sub>225</sub>; -(CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>8</sub> alkyl); -(CH<sub>2</sub>)<sub>0-4</sub>-CO<sub>2</sub>R<sub>215</sub>; and -(CH<sub>2</sub>)<sub>0-4</sub>-O-(C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, 3, or 5 -F);

R<sub>205</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -OH, -O-phenyl, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>6</sub> alkoxy, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), and N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl);

R<sub>210</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1 or 2 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>1</sub>-C<sub>4</sub> haloalkoxy; -NR<sub>220</sub>R<sub>225</sub>; OH; C≡N; C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1 or 2 R<sub>205</sub> groups; -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); -SO<sub>2</sub>-NR<sub>235</sub>R<sub>240</sub>; -CO-NR<sub>235</sub>R<sub>240</sub>; -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); and =O; wherein

R<sub>215</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl, -(CH<sub>2</sub>)<sub>0-2</sub>-(phenyl), C<sub>3</sub>-C<sub>6</sub> cycloalkyl, -(CH<sub>2</sub>)<sub>0-2</sub>-(pyridyl), -(CH<sub>2</sub>)<sub>0-2</sub>-(pyrrolyl), -(CH<sub>2</sub>)<sub>0-2</sub>-(imidazolyl), -(CH<sub>2</sub>)<sub>0-2</sub>-(pyrimidyl), -(CH<sub>2</sub>)<sub>0-2</sub>-

(pyrrolidinyl),  $-(CH_2)_{0-2}-(\text{imidazolidinyl})$   
 $-(CH_2)_{0-2}-(\text{piperazinyl})$ ,  $-(CH_2)_{0-2}-(\text{piperidinyl})$ ,  
and  $-(CH_2)_{0-2}-(\text{morpholinyl})$ ; wherein the phenyl  
group at each occurrence is optionally  
substituted with 1 or 2 groups that are  
independently  $R_{205}$  or  $R_{210}$ ; wherein each  
heterocycloalkyl group at each occurrence is  
optionally substituted with 1 or 2  $R_{210}$ ;  
wherein each heteroaryl group at each  
occurrence is optionally substituted with 1 or  
2  $R_{210}$ ;

$R_{220}$  and  $R_{225}$  at each occurrence are independently -H,  
-C<sub>1</sub>-C<sub>4</sub> alkyl, hydroxy C<sub>1</sub>-C<sub>4</sub> alkyl, halo C<sub>1</sub>-C<sub>4</sub>  
alkyl; -C<sub>3</sub>-C<sub>6</sub> cycloalkyl, and -(C<sub>1</sub>-C<sub>4</sub> alkyl)-O-  
(C<sub>1</sub>-C<sub>2</sub> alkyl);

$R_{235}$  and  $R_{240}$  at each occurrence are independently H,  
or C<sub>1</sub>-C<sub>6</sub> alkyl;

$R_{245}$  and  $R_{250}$  at each occurrence are independently H,  
C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-  
C<sub>4</sub> haloalkoxy, or

$R_{245}$  and  $R_{250}$  are taken together with the carbon to  
which they are attached to form a carbocycle of  
3, 4, 5, or 6 carbon atoms.

Other preferred compounds of formula AA-3 include  
compounds wherein

X is -C<sub>1</sub>-C<sub>3</sub> alkylidenyl optionally optionally substituted  
with 1 or 2 methyl groups;

Z is SO<sub>2</sub>; SO; S; or C(O);

Y is C<sub>1</sub>-C<sub>4</sub> haloalkyl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl  
optionally substituted with 1 or 2 substituents  
which can be the same or different and are selected  
from halogen, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> thioalkoxy,  
and C<sub>1</sub>-C<sub>4</sub> haloalkoxy; C<sub>1</sub>-C<sub>4</sub> alkoxy; phenyl optionally

substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; and benzyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkoxy, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; benzyl; and C<sub>3</sub>-C<sub>6</sub> cycloalkyl C<sub>1</sub>-C<sub>2</sub> alkyl; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula AA-3 also include those of formula AA-4, i.e., compounds of formula AA-3 wherein

X is-C<sub>1</sub>-C<sub>3</sub> alkylidenyl optionally optionally substituted with 1 methyl group;

Z is SO<sub>2</sub>; SO; S; or C(O);

Y is OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); phenyl; benzyl; or C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 or 2 substituents which can be the same or different and are selected from halogen, hydroxy, methoxy, ethoxy, thiomethoxy, thioethoxy, and CF<sub>3</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 or 2 substituents selected from halogen, methoxy, ethoxy, cyclopropyl, and OH; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted

with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or halogen;

R<sub>1</sub> is benzyl which is optionally substituted with 1, 2, or 3 groups independently selected from methyl, ethyl, n-propyl, isopropyl, hydroxymethyl, monohalomethyl, dihalomethyl, trihalomethyl, -CH<sub>2</sub>CF<sub>3</sub>, methoxymethyl, halogen, methoxy, ethoxy, n-propyloxy, isopropyloxy, and OH;

R<sub>2</sub> and R<sub>3</sub> are independently H or C<sub>1</sub>-C<sub>4</sub> alkyl;

R<sub>C</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; cyclopropyl, cyclopropylmethyl, cyclopentyl, cyclopentylmethyl, cyclohexyl, cyclohexylmethyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-phenyl optionally substituted with 1 or 2 R<sub>200</sub> groups; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyridyl optionally substituted with 1 or 2 R<sub>200</sub>; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-piperazinyl; or (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrrolidinyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-piperidinyl; each of the above heterocycloalkyl groups is optionally substituted with 1 or 2 R<sub>210</sub> groups;

R<sub>200</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 or 2 R<sub>205</sub> groups; OH; and halogen;

R<sub>205</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, and C<sub>1</sub>-C<sub>4</sub> alkoxy;

R<sub>210</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 or 2 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>4</sub> alkoxy; OCF<sub>3</sub>; NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl); N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); OH; and -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); wherein

R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently selected from H, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 5, or 6 carbon atoms.

Preferred compounds of formulas AA, AA-1 and AA-2 include compounds of formula AA-5, i.e., those of formulae AA, AA-1 or AA-2 wherein

one of R<sub>N</sub> and R<sub>N'</sub> is hydrogen and the other is -C(=O)-(CRR')<sub>0-6</sub>R<sub>100</sub>; and

R<sub>100</sub> represents aryl, heteroaryl, or heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

-OR, -NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -C≡N, -OCF<sub>3</sub>, -CF<sub>3</sub>, -  
(CH<sub>2</sub>)<sub>0-4</sub>-O-P(=O)(OR)(OR'), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-O-(CH<sub>2</sub>)<sub>0-4</sub>-CONR<sub>102</sub>R<sub>102'</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>12</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkenyl), - (CH<sub>2</sub>)<sub>0-4</sub>-  
CO-(C<sub>2</sub>-C<sub>12</sub> alkynyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(CH<sub>2</sub>)<sub>0-4</sub>(C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO-(C<sub>1</sub>-C<sub>8</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>12</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-  
(CH<sub>2</sub>)<sub>0-4</sub>-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
N(R<sub>150</sub>)-CS-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-R<sub>105</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-CO-  
(C<sub>1</sub>-C<sub>6</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-O-P(O)-(O-R<sub>110</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
O-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-CS-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
O-(R<sub>150</sub>), - (CH<sub>2</sub>)<sub>0-4</sub>-O-R<sub>150'</sub>-COOH, - (CH<sub>2</sub>)<sub>0-4</sub>-S-(R<sub>150</sub>),  
- (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl, (C<sub>2</sub>-C<sub>10</sub>)alkenyl, or (C<sub>2</sub>-C<sub>10</sub>)alkynyl.

Preferred compounds of formula AA-5 include compounds wherein

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one of  $R_N$  and  $R_N'$  is hydrogen and the other is  $-C(=O)-R_{100}$ ;  
and

$R_{100}$  represents aryl, or heteroaryl, where the ring  
portions of each are optionally substituted with 1,  
2, or 3 groups independently selected from

$-OR$ ,  $-NO_2$ ,  $C_1-C_6$  alkyl, halogen,  $-C\equiv N$ ,  $-OCF_3$ ,  $-CF_3$ ,  $-(CH_2)_{0-4}-O-P(=O)(OR)(OR')$ ,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  
 $-(CH_2)_{0-4}-O-(CH_2)_{0-4}-CONR_{102}R'_{102}$ ,  $-(CH_2)_{0-4}-CO-(C_1-C_{12}$   
alkyl),  $-(CH_2)_{0-4}-CO-(C_2-C_{12}$  alkenyl),  $-(CH_2)_{0-4}-$   
 $CO-(C_2-C_{12}$  alkynyl),  $-(CH_2)_{0-4}-CO-(CH_2)_{0-4}(C_3-C_7$   
cycloalkyl),  $-(CH_2)_{0-4}-R_{110}$ ,  $-(CH_2)_{0-4}-R_{120}$ ,  
 $-(CH_2)_{0-4}-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{110}$ ,  $-(CH_2)_{0-4}-CO-R_{120}$ ,  
 $-(CH_2)_{0-4}-CO-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{140}$ ,  $-(CH_2)_{0-4}-CO-O-$   
 $R_{150}$ ,  $-(CH_2)_{0-4}-SO_2-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-SO-(C_1-C_8$   
alkyl),  $-(CH_2)_{0-4}-SO_2-(C_1-C_{12}$  alkyl),  $-(CH_2)_{0-4}-SO_2-$   
 $(CH_2)_{0-4}-(C_3-C_7$  cycloalkyl),  $-(CH_2)_{0-4}-N(R_{150})-CO-O-$   
 $R_{150}$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-$   
 $N(R_{150})-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-R_{105}$ ,  
 $-(CH_2)_{0-4}-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-R_{140}$ ,  $-(CH_2)_{0-4}-O-CO-$   
 $(C_1-C_6$  alkyl),  $-(CH_2)_{0-4}-O-P(O)-(O-R_{110})_2$ ,  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  
 $-(CH_2)_{0-4}-O-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-O-(R_{150})$ ,  $-(CH_2)_{0-4}-O-R_{150}'-COOH$ ,  
 $-(CH_2)_{0-4}-S-(R_{150})$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-C_3-C_7$   
cycloalkyl,  $(C_2-C_{10})$  alkenyl, or  $(C_2-C_{10})$  alkynyl.

Preferred compounds of formula AA-5 also include  
compounds wherein

one of  $R_N$  and  $R_N'$  is hydrogen and the other is  $-C(=O)$ -aryl  
or  $-C(=O)$ -heteroaryl where the ring portions of each  
are optionally substituted with 1, 2, or 3 groups  
independently selected from

$-OR$ ,  $-NO_2$ ,  $C_1-C_6$  alkyl, halogen,  $-C\equiv N$ ,  $-OCF_3$ ,  $-CF_3$ ,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  
 $-(CH_2)_{0-4}-O-(CH_2)_{0-4}-CONR_{102}R'_{102}$ ,  $-(CH_2)_{0-4}-CO-(C_1-C_{12}$  alkyl),  $-(CH_2)_{0-4}-$

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CO-(C<sub>2</sub>-C<sub>12</sub> alkenyl), -(CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkynyl),  
-(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>,  
-(CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>110</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-  
R<sub>130</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>140</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-O-R<sub>150</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-SO-(C<sub>1</sub>-C<sub>8</sub> alkyl),  
-(CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>12</sub> alkyl), -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-O-  
R<sub>150</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-N(R<sub>150</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
N(R<sub>150</sub>)-CO-R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>140</sub>,  
-(CH<sub>2</sub>)<sub>0-4</sub>-O-CO-(C<sub>1</sub>-C<sub>6</sub> alkyl), -(CH<sub>2</sub>)<sub>0-4</sub>-O-CO-  
N(R<sub>150</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-O-(R<sub>150</sub>), -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-  
R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub> cycloalkyl, (C<sub>2</sub>-  
C<sub>10</sub>)alkenyl, or (C<sub>2</sub>-C<sub>10</sub>)alkynyl.

Other preferred compounds of formula AA-5 include  
compounds wherein

one of R<sub>N</sub> and R<sub>N'</sub> is hydrogen and the other is -C(=O)-aryl  
or -C(=O)-heteroaryl where the ring portions of each  
are optionally substituted with 1 or 2 groups  
independently selected from

C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
O-CO-N(R<sub>150</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, (C<sub>2</sub>-C<sub>10</sub>)alkenyl,  
-(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, or  
(C<sub>2</sub>-C<sub>10</sub>)alkynyl.

Other preferred compounds of formula AA-5 include  
compounds wherein

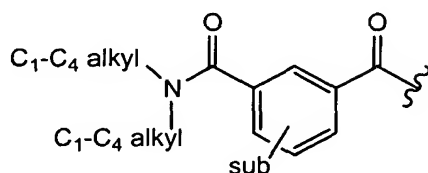
one of R<sub>N</sub> and R<sub>N'</sub> is hydrogen and the other is -C(=O)-  
phenyl, where the phenyl ring is optionally  
substituted with 1 or 2 groups independently  
selected from

C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
O-CO-N(R<sub>150</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, (C<sub>2</sub>-C<sub>10</sub>)alkenyl,

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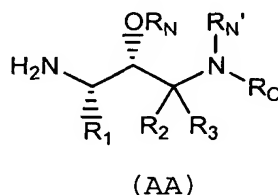
$-(CH_2)_{0-4}-R_{110}$ ,  $-(CH_2)_{0-4}-R_{120}$ ,  $-(CH_2)_{0-4}-R_{130}$ , or  
 $(C_2-C_{10})$ alkynyl.

Other preferred compounds of formula AA-5 also include compounds wherein one of  $R_N$  and  $R_{N'}$  is hydrogen and the other is:



wherein sub is hydrogen or is  $C_1-C_6$  alkyl, halogen,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-SO_2-NR_{105}R'_{105}$ ,  $C_3-C_7$  cycloalkyl,  $-(C_2-C_{10})$ alkenyl,  $-(CH_2)_{0-4}-R_{110}$ ,  $-(CH_2)_{0-4}-R_{120}$ ,  $-(CH_2)_{0-4}-R_{130}$ , or  $(C_2-C_{10})$ alkynyl.

A preferred stereochemistry for compounds of formula AA is as follows:



Preferred compounds of formula I include those of formula I-1, i.e., compounds of formula I wherein  $R_1$  is aryl, heteroaryl, heterocyclyl,  $-C_1-C_6$  alkyl-aryl,  $-C_1-C_6$  alkyl-heteroaryl, or  $-C_1-C_6$  alkyl-heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen,  $-OH$ ,  $-SH$ ,  $-C\equiv N$ ,  $-NO_2$ ,  $-NR_{105}R'_{105}$ ,  $-CO_2R$ ,  $-N(R)COR'$ , or  $-N(R)SO_2R'$ ,  $-C(=O)-(C_1-C_4)$  alkyl,  $-SO_2$ -amino,  $-SO_2$ -mono or dialkylamino,  $-C(=O)-$



amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or

C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or

C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula I-1 also include those wherein

R<sub>1</sub> is -C<sub>1</sub>-C<sub>6</sub> alkyl-aryl, -C<sub>1</sub>-C<sub>6</sub> alkyl-heteroaryl, or -C<sub>1</sub>-C<sub>6</sub> alkyl-heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, -OH, -SH, -C≡N, -NO<sub>2</sub>, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -N(R)COR', or -N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl, -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-

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amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or  
C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or  
C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or  
C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or  
C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula I-1 further include those wherein

R<sub>1</sub> is -(CH<sub>2</sub>)-aryl, -(CH<sub>2</sub>)-heteroaryl, or -(CH<sub>2</sub>)-heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, -OH, -SH, -C≡N, -NO<sub>2</sub>, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -N(R)COR', or -N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl, -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-

amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or  
C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or  
C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or  
C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or  
C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula I-1 also include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl or -CH<sub>2</sub>-pyridinyl where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, hydroxy, -NO<sub>2</sub>, and  
C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1, 2, or 3 substituents independently selected from halogen, OH, SH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), C≡N, CF<sub>3</sub>.

Preferred compounds of formula I-1 further include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl or -CH<sub>2</sub>-pyridinyl where the phenyl or pyridinyl rings are each optionally substituted with 1 or 2 groups independently selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>2</sub> alkoxy, hydroxy, -CF<sub>3</sub>, and -NO<sub>2</sub>.

Preferred compounds of formula I-1 include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl where the phenyl ring is optionally substituted with 2 groups independently selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>2</sub> alkoxy, hydroxy, and -NO<sub>2</sub>.

Preferred compounds of formula I-1 also include those wherein R<sub>1</sub> is benzyl, or 3,5-difluorobenzyl.

Preferred compounds of formula I and I-1 include those of formula I-2, i.e., compounds of formula I or I-1 wherein

R<sub>2</sub> and R<sub>3</sub> are independently selected from H or C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of C<sub>1</sub>-C<sub>3</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, and -NR<sub>1-a</sub>R<sub>1-b</sub>.

Preferred compounds of formula I-2 include those wherein

R<sub>C</sub> is selected from the group consisting of C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -OC=ONR<sub>235</sub>R<sub>240</sub>, -S(=O)<sub>0-2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -SH, -NR<sub>235</sub>C=ONR<sub>235</sub>R<sub>240</sub>, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>8</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of

$R_{205}$ ,  $-\text{CO}_2\text{H}$ , and  $-\text{CO}_2-(\text{C}_1-\text{C}_4 \text{ alkyl})$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-4}-\text{aryl}$ ;  
 $-(\text{CR}_{245}\text{R}_{250})_{0-4}-\text{heteroaryl}$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-4}-$   
 $\text{heterocycloalkyl}$ ;  $-[\text{C}(\text{R}_{255})(\text{R}_{260})]_{1-3}-\text{CO}-\text{N}-(\text{R}_{255})_2$ ;  $-$   
 $\text{CH}(\text{aryl})_2$ ;  $-\text{CH}(\text{heteroaryl})_2$ ;  $-\text{CH}(\text{heterocycloalkyl})_2$ ;  
 $-\text{CH}(\text{aryl})(\text{heteroaryl})$ ;  $-\text{CO}-\text{NR}_{235}\text{R}_{240}$ ;  $-(\text{CH}_2)_{0-1}-$   
 $\text{CH}((\text{CH}_2)_{0-6}-\text{OH})-(\text{CH}_2)_{0-1}-\text{aryl}$ ;  $-(\text{CH}_2)_{0-1}-\text{CHR}_{\text{C-6}}-(\text{CH}_2)_{0-1}-$   
 $\text{heteroaryl}$ ;  $-\text{CH}(-\text{aryl} \text{ or } -\text{heteroaryl})-\text{CO}-\text{O}(\text{C}_1-\text{C}_4$   
 $\text{alkyl})$ ;  $-\text{CH}(-\text{CH}_2-\text{OH})-\text{CH}(\text{OH})-\text{phenyl}-\text{NO}_2$ ;  $(\text{C}_1-\text{C}_6 \text{ alkyl})-$   
 $\text{O}-(\text{C}_1-\text{C}_6 \text{ alkyl})-\text{OH}$ ;  $-\text{CH}_2-\text{NH}-\text{CH}_2-\text{CH}(-\text{O}-\text{CH}_2-\text{CH}_3)_2$ ;  $-\text{H}$ ;  
and  $-(\text{CH}_2)_{0-6}-\text{C}(=\text{NR}_{235})(\text{NR}_{235}\text{R}_{240})$ ; wherein

each aryl is optionally substituted with 1, 2, or 3  
 $R_{200}$ ;

each heteroaryl is optionally substituted with 1, 2,  
3, or 4  $R_{200}$ ;

each heterocycloalkyl is optionally substituted with  
1, 2, 3, or 4  $R_{210}$ ;

$R_{200}$  at each occurrence is independently selected  
from the group consisting of  $\text{C}_1-\text{C}_6 \text{ alkyl}$   
optionally substituted with 1, 2, or 3  $R_{205}$   
groups;  $\text{OH}$ ;  $-\text{NO}_2$ ; halogen;  $-\text{CO}_2\text{H}$ ;  $\text{C}\equiv\text{N}$ ;  $-(\text{CH}_2)_{0-4}-$   
 $\text{CO}-\text{NR}_{220}\text{R}_{225}$ ;  $-(\text{CH}_2)_{0-4}-\text{CO}-(\text{C}_1-\text{C}_{12} \text{ alkyl})$ ;  $-(\text{CH}_2)_{0-4}-$   
 $\text{CO}_2\text{R}_{215}$ ; and  $-(\text{CH}_2)_{0-4}-\text{O}-(\text{C}_1-\text{C}_6 \text{ alkyl})$  optionally  
substituted with 1, 2, 3, or 5  $-\text{F}$ ;

wherein each aryl group at each occurrence is  
optionally substituted with 1, 2, or 3  
groups that are independently  $R_{205}$ ,  $R_{210}$  or  
 $\text{C}_1-\text{C}_6 \text{ alkyl}$  substituted with 1, 2, or 3  
groups that are independently  $R_{205}$  or  $R_{210}$ ;

wherein each heterocycloalkyl group at each  
occurrence is optionally substituted with  
1, 2, or 3 groups that are independently  
 $R_{210}$ ;

wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3 groups that are independently  $R_{205}$ ,  $R_{210}$ , or  $C_1$ - $C_6$  alkyl substituted with 1, 2, or 3 groups that are independently  $R_{205}$  or  $R_{210}$ ;

$R_{205}$  at each occurrence is independently selected from the group consisting of  $C_1$ - $C_6$  alkyl, halogen, -OH, -O-phenyl, -SH, -C $\equiv$ N, -CF $_3$ ,  $C_1$ - $C_6$  alkoxy, NH $_2$ , NH( $C_1$ - $C_6$  alkyl), and N-( $C_1$ - $C_6$  alkyl)( $C_1$ - $C_6$  alkyl);

$R_{210}$  at each occurrence is independently selected from the group consisting of  $C_1$ - $C_6$  alkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups; halogen;  $C_1$ - $C_6$  alkoxy;  $C_1$ - $C_6$  haloalkoxy; -NR $_{220}$ R $_{225}$ ; OH; C $\equiv$ N;  $C_3$ - $C_7$  cycloalkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups; -CO-( $C_1$ - $C_4$  alkyl); -SO $_2$ -NR $_{235}$ R $_{240}$ ; -CO-NR $_{235}$ R $_{240}$ ; -SO $_2$ -( $C_1$ - $C_4$  alkyl); and =O; wherein

$R_{215}$  at each occurrence is independently selected from the group consisting of  $C_1$ - $C_6$  alkyl, -(CH $_2$ ) $_{0-2}$ -(aryl),  $C_3$ - $C_7$  cycloalkyl, and -(CH $_2$ ) $_{0-2}$ -(heteroaryl), -(CH $_2$ ) $_{0-2}$ -(heterocycloalkyl); wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 groups that are independently  $R_{205}$  or  $R_{210}$ ; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3  $R_{210}$ ; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3  $R_{210}$ ;

$R_{220}$  and  $R_{225}$  at each occurrence are independently selected from the group consisting of -H, - $C_1$ - $C_6$

alkyl, hydroxy C<sub>1</sub>-C<sub>6</sub> alkyl, amino C<sub>1</sub>-C<sub>6</sub> alkyl; halo C<sub>1</sub>-C<sub>6</sub> alkyl; -C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>3</sub> alkyl), -aryl, -heteroaryl, and -heterocycloalkyl; wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>270</sub> groups, each heteroaryl is optionally substituted with 1, 2, 3, or 4 R<sub>200</sub>, each heterocycloalkyl is optionally substituted with 1, 2, 3, or 4 R<sub>210</sub> wherein

R<sub>270</sub> at each occurrence is independently R<sub>205</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkoxy; NR<sub>235</sub>R<sub>240</sub>; OH; C≡N; -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); and =O; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>205</sub> groups;

R<sub>235</sub> and R<sub>240</sub> at each occurrence are independently H, or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, 6, or 7 carbon atoms, wherein the carbocycle is optionally substituted with 1 or 2 groups that are independently OH, methyl, Cl, F, OCH<sub>3</sub>, CF<sub>3</sub>, NO<sub>2</sub>, or CN;

R<sub>255</sub> and R<sub>260</sub> at each occurrence are independently selected from the group consisting of H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3

R<sub>205</sub> groups; -(CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; -(C<sub>1</sub>-C<sub>4</sub> alkyl)-aryl; -(C<sub>1</sub>-C<sub>4</sub> alkyl)-heteroaryl; -(C<sub>1</sub>-C<sub>4</sub> alkyl)-heterocycloalkyl; aryl; heteroaryl; heterocycloalkyl; -(CH<sub>2</sub>)<sub>1-4</sub>-R<sub>265</sub>-(CH<sub>2</sub>)<sub>0-4</sub>-aryl; -(CH<sub>2</sub>)<sub>1-4</sub>-R<sub>265</sub>-(CH<sub>2</sub>)<sub>0-4</sub>-heteroaryl; and; -(CH<sub>2</sub>)<sub>1-4</sub>-R<sub>265</sub>-(CH<sub>2</sub>)<sub>0-4</sub>-heterocycloalkyl; wherein R<sub>265</sub> at each occurrence is independently -O-, -S- or -N(C<sub>1</sub>-C<sub>6</sub> alkyl)-; each aryl or phenyl is optionally substituted with 1, 2, or 3 groups that are independently R<sub>205</sub>, R<sub>210</sub>, or C<sub>1</sub>-C<sub>6</sub> alkyl substituted with 1, 2, or 3 groups that are independently R<sub>205</sub> or R<sub>210</sub>.

Preferred compounds of formula I-2 include those wherein:

R<sub>C</sub> is -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-aryl, or -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heteroaryl, wherein aryl and heteroaryl are optionally substituted with 1, 2, or 3 R<sub>200</sub> groups.

Preferred compounds of formula I-2 also include compounds wherein

R<sub>C</sub> is -(CR<sub>245</sub>R<sub>250</sub>)-aryl, or -(CR<sub>245</sub>R<sub>250</sub>)-heteroaryl wherein each aryl and heteroaryl is optionally substituted with 1, 2, or 3 R<sub>200</sub> groups.

Preferred compounds of formula I-2 also include compounds wherein

R<sub>C</sub> is -(CH<sub>2</sub>)-aryl, or -(CH<sub>2</sub>)-heteroaryl, wherein each aryl and heteroaryl is optionally substituted with 1, 2, or 3 groups selected from OH, -NO<sub>2</sub>, halogen, -CO<sub>2</sub>H, C≡N, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>220</sub>R<sub>225</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>12</sub> alkyl), and -(CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>220</sub>R<sub>225</sub>.



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Preferred compounds of formula I-2 also include compounds wherein

R<sub>C</sub> is -(CH<sub>2</sub>)-aryl, wherein aryl is optionally substituted with 1, 2, or 3 groups selected from OH, -NO<sub>2</sub>, halogen, -CO<sub>2</sub>H, and C≡N.

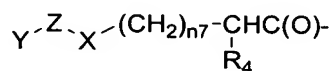
Preferred compounds of formula I-2 also include compounds wherein

R<sub>C</sub> is -(CH<sub>2</sub>)-phenyl, wherein phenyl is optionally substituted with 1, 2, or 3 groups selected from OH, -NO<sub>2</sub>, halogen, -CO<sub>2</sub>H, and C≡N.

Preferred compounds of formula I-2 also include compounds wherein R<sub>C</sub> is benzyl.

Other preferred compounds of formulas I, I-1 and I-2 include compounds of formula I-3, i.e., those of formulas I, I-1 or I-2 wherein

R<sub>N</sub> is:



wherein

R<sub>4</sub> is NH<sub>2</sub>; -NH-(CH<sub>2</sub>)<sub>n<sub>6</sub></sub>-R<sub>4-1</sub>; -NHR<sub>8</sub>; -NR<sub>50</sub>C(O)R<sub>5</sub>; or -NR<sub>50</sub>CO<sub>2</sub>R<sub>51</sub>;

wherein

n<sub>6</sub> is 0, 1, 2, or 3;

n<sub>7</sub> is 0, 1, 2, or 3;

R<sub>4-1</sub> is selected from the group consisting of -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyl), -SO-(C<sub>1</sub>-C<sub>8</sub> alkyl), -S-(C<sub>1</sub>-C<sub>8</sub> alkyl), -S-CO-(C<sub>1</sub>-C<sub>6</sub> alkyl), -SO<sub>2</sub>-NR<sub>4-2</sub>R<sub>4-3</sub>; -CO-C<sub>1</sub>-C<sub>2</sub> alkyl; -CO-NR<sub>4-3</sub>R<sub>4-4</sub>;

R<sub>4-2</sub> and R<sub>4-3</sub> are independently H, C<sub>1</sub>-C<sub>3</sub> alkyl, or C<sub>3</sub>-C<sub>6</sub> cycloalkyl;

R<sub>4-4</sub> is alkyl, phenylalkyl, C<sub>2</sub>-C<sub>4</sub> alkanoyl, or phenylalkanoyl;

R<sub>5</sub> is cyclopropyl; cyclobutyl; cyclopentyl; and cyclohexyl; wherein each cycloalkyl group is optionally substituted with one or two groups that are C<sub>1</sub>-C<sub>6</sub> alkyl, more preferably C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, more preferably C<sub>1</sub>-C<sub>2</sub> alkoxy, CF<sub>3</sub>, OH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), halogen, CN, or NO<sub>2</sub>; or the cycloalkyl group is substituted with 1 or 2 groups that are independently CF<sub>3</sub>, Cl, F, methyl, ethyl or cyano; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, -NR<sub>6</sub>R<sub>7</sub>, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>6</sub> heteroaryl, phenyl, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -S-C<sub>1</sub>-C<sub>4</sub> alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, -CO<sub>2</sub>H, -CONR<sub>6</sub>R<sub>7</sub>, -CO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, or phenyloxy; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>1</sub>-C<sub>4</sub> haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, or C<sub>2</sub>-C<sub>4</sub> alkanoyl; phenyl optionally substituted with 1, 2, 3, or 4 groups that are independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein

R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, and phenyl C<sub>1</sub>-C<sub>4</sub> alkyl;

R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl or halogen;, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

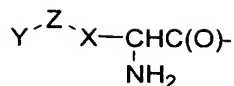
R<sub>9</sub> is phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;

R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>51</sub> is selected from the group consisting of phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> or -C<sub>1</sub>-C<sub>4</sub> alkoxy; heterocycloalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; heterocycloalkylalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl, wherein the phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy.

Preferred compounds of formula I-3 include compounds wherein

R<sub>N</sub> is



wherein

X is C<sub>1</sub>-C<sub>4</sub> alkylidenyl optionally substituted with 1, 2, or 3 methyl groups; or -NR<sub>4-6</sub>-; or

R<sub>4</sub> and R<sub>4-6</sub> combine to form -(CH<sub>2</sub>)<sub>n<sub>10</sub></sub>-, wherein

n<sub>10</sub> is 1, 2, 3, or 4;

Z is selected from a bond; SO<sub>2</sub>; SO; S; and C(O);

Y is selected from H; C<sub>1</sub>-C<sub>4</sub> haloalkyl; C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl containing at least one N, O, or S; phenyl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy; C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, and halogen; alkoxy; phenyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; and C<sub>3</sub>-C<sub>8</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are

independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula I-3 include compounds wherein

X is C<sub>1</sub>-C<sub>4</sub> alkylidenyl optionally optionally substituted with 1, 2, or 3 methyl groups;

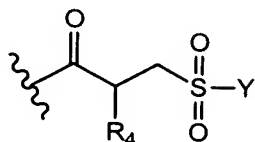
Z is selected from SO<sub>2</sub>; SO; S; and C(O);

Y is selected from H; C<sub>1</sub>-C<sub>4</sub> haloalkyl; C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl containing at least one N, O, or S; phenyl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from the group consisting of halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy; C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, and halogen; alkoxy; phenyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; or C<sub>3</sub>-C<sub>8</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula I-3 include compounds wherein  $R_N$  is



and wherein  $R_4$  is  $\text{NH}_2$ ;  $-\text{NH}-(\text{CH}_2)_{n_6}-R_{4-1}$ ;  $-\text{NHR}_8$ ;  $-\text{NR}_{50}\text{C}(\text{O})\text{R}_5$ ; or  $-\text{NR}_{50}\text{CO}_2\text{R}_{51}$  wherein

$n_6$  is 0, 1, 2, or 3;

$n_7$  is 0, 1, 2, or 3;

$R_{4-1}$  is selected from the group consisting of  $-\text{SO}_2-$  ( $\text{C}_1$ - $\text{C}_8$  alkyl),  $-\text{SO}-$  ( $\text{C}_1$ - $\text{C}_8$  alkyl),  $-\text{S}-$  ( $\text{C}_1$ - $\text{C}_8$  alkyl),  $-\text{S}-\text{CO}-$  ( $\text{C}_1$ - $\text{C}_6$  alkyl),  $-\text{SO}_2-\text{NR}_{4-2}\text{R}_{4-3}$ ;  $-\text{CO}-\text{C}_1-\text{C}_2$  alkyl;  $-\text{CO}-\text{NR}_{4-3}\text{R}_{4-4}$ ;

$R_{4-2}$  and  $R_{4-3}$  are independently H,  $\text{C}_1$ - $\text{C}_3$  alkyl, or  $\text{C}_3$ - $\text{C}_6$  cycloalkyl;

$R_{4-4}$  is alkyl, phenylalkyl,  $\text{C}_2$ - $\text{C}_4$  alkanoyl, or phenylalkanoyl;

$R_5$  is cyclopropyl; cyclobutyl; cyclopentyl; or cyclohexyl; wherein each cycloalkyl group is optionally substituted with one or two groups that are  $\text{C}_1$ - $\text{C}_6$  alkyl, more preferably  $\text{C}_1$ - $\text{C}_2$  alkyl,  $\text{C}_1$ - $\text{C}_6$  alkoxy, more preferably  $\text{C}_1$ - $\text{C}_2$  alkoxy,  $\text{CF}_3$ , OH,  $\text{NH}_2$ ,  $\text{NH}(\text{C}_1$ - $\text{C}_6$  alkyl),  $\text{N}(\text{C}_1$ - $\text{C}_6$  alkyl)( $\text{C}_1$ - $\text{C}_6$  alkyl), halogen, CN, or  $\text{NO}_2$ ; or the cycloalkyl group is substituted with 1 or 2 groups that are independently  $\text{CF}_3$ , Cl, F, methyl, ethyl or cyano;  $\text{C}_1$ - $\text{C}_6$  alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen,  $-\text{NR}_6\text{R}_7$ ,  $\text{C}_1$ - $\text{C}_4$  alkoxy,  $\text{C}_5$ - $\text{C}_6$  heterocycloalkyl,  $\text{C}_5$ - $\text{C}_6$  heteroaryl, phenyl,  $\text{C}_3$ - $\text{C}_7$  cycloalkyl,  $-\text{S}-\text{C}_1$ - $\text{C}_4$  alkyl,  $-\text{SO}_2$ - $\text{C}_1$ - $\text{C}_4$  alkyl,  $-\text{CO}_2\text{H}$ ,  $-\text{CONR}_6\text{R}_7$ ,  $-\text{CO}_2$ - $\text{C}_1$ - $\text{C}_4$  alkyl, or phenyloxy; heteroaryl optionally substituted

with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>1</sub>-C<sub>4</sub> haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, or C<sub>2</sub>-C<sub>4</sub> alkanoyl; phenyl optionally substituted with 1, 2, 3, or 4 groups that are independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, and phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl or halogen;, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

R<sub>9</sub> is phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;  
R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl; and

R<sub>51</sub> is selected from the group consisting of phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> or -C<sub>1</sub>-C<sub>4</sub> alkoxy; heterocycloalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; heterocycloalkylalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally

substituted with 1, 2, or 3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl, wherein the phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy; and

Y is C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy.

Preferred compounds of formula I-3 further include compounds wherein

R<sub>C</sub> is C<sub>1</sub>-C<sub>8</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -OC=ONR<sub>235</sub>R<sub>240</sub>, -S(=O)<sub>0-2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -SH, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>8</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -CO<sub>2</sub>H, and -CO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-phenyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heteroaryl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-



heterocycloalkyl;  $-(CH_2)_{0-1}-CH((CH_2)_{0-4}-OH)-(CH_2)_{0-1}-$   
phenyl;  $-(CH_2)_{0-1}-CHR_{C-6}-(CH_2)_{0-1}-heteroaryl$ ;  $-CH(-CH_2-$   
OH)-CH(OH)-phenyl-NO<sub>2</sub>; (C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>6</sub> alkyl)-  
OH; or  $-(CH_2)_{0-6}-C(=NR_{235})(NR_{235}R_{240})$ ; wherein  
each aryl is optionally substituted with 1, 2, or 3  
R<sub>200</sub>;

each heteroaryl is optionally substituted with 1, 2,  
3, or 4 R<sub>200</sub>;

each heterocycloalkyl is optionally substituted with  
1, 2, 3, or 4 R<sub>210</sub>;

R<sub>200</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl  
optionally substituted with 1, 2, or 3 R<sub>205</sub>  
groups; OH; -NO<sub>2</sub>; halogen; -CO<sub>2</sub>H; C≡N;  $-(CH_2)_{0-4}-$   
CO-NR<sub>220</sub>R<sub>225</sub>;  $-(CH_2)_{0-4}-CO-(C_1-C_{12} \text{ alkyl})$ ;  $-(CH_2)_{0-4}-$   
CO<sub>2</sub>R<sub>215</sub>; or  $-(CH_2)_{0-4}-O-(C_1-C_6 \text{ alkyl})$  optionally  
substituted with 1, 2, 3, or 5 -F);

R<sub>205</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl,  
halogen, -OH, -O-phenyl, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>6</sub>  
alkoxy, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), or N-(C<sub>1</sub>-C<sub>6</sub>  
alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl);

R<sub>210</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl  
optionally substituted with 1, 2, or 3 R<sub>205</sub>  
groups; halogen; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkoxy;  
-NR<sub>220</sub>R<sub>225</sub>; OH; C≡N; C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally  
substituted with 1, 2, or 3 R<sub>205</sub> groups; -CO-(C<sub>1</sub>-  
C<sub>4</sub> alkyl); -SO<sub>2</sub>-NR<sub>235</sub>R<sub>240</sub>; -CO-NR<sub>235</sub>R<sub>240</sub>; -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>  
alkyl); and =O; wherein

R<sub>215</sub> at each occurrence is independently C<sub>1</sub>-C<sub>6</sub> alkyl,  
 $-(CH_2)_{0-2}-(phenyl)$ , C<sub>3</sub>-C<sub>7</sub> cycloalkyl, and  $-(CH_2)_{0-2}-$   
 $-(heteroaryl)$ ,  $-(CH_2)_{0-2}-(heterocycloalkyl)$ ;  
wherein the phenyl group at each occurrence is  
optionally substituted with 1, 2, or 3 groups  
that are independently R<sub>205</sub> or R<sub>210</sub>; wherein the

heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3  $R_{210}$ ; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3  $R_{210}$ ;

$R_{220}$  and  $R_{225}$  at each occurrence are independently -H, -C<sub>1</sub>-C<sub>6</sub> alkyl, hydroxy C<sub>1</sub>-C<sub>6</sub> alkyl, halo C<sub>1</sub>-C<sub>6</sub> alkyl; -C<sub>3</sub>-C<sub>7</sub> cycloalkyl, and -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>3</sub> alkyl);

$R_{235}$  and  $R_{240}$  at each occurrence are independently H, or C<sub>1</sub>-C<sub>6</sub> alkyl;

$R_{245}$  and  $R_{250}$  at each occurrence are independently H, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, or

$R_{245}$  and  $R_{250}$  are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, 6, or 7 carbon atoms.

Preferred compounds of formula I-3 include compounds wherein

$R_1$  is benzyl which is optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, hydroxy, and C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1, 2, or 3 substituents halogen, OH, SH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), C≡N, CF<sub>3</sub>;

$R_2$  and  $R_3$  are independently selected from H or C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 substituent selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), and NH(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl);

$R_C$  is C<sub>1</sub>-C<sub>8</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from  $R_{205}$ , -SH, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>6</sub>) cycloalkyl wherein the cycloalkyl is optionally

substituted with 1, 2, or 3 groups independently selected from  $R_{205}$ ,  $-\text{CO}_2\text{H}$ , and  $-\text{CO}_2-(\text{C}_1-\text{C}_4 \text{ alkyl})$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-4}$ -phenyl optionally substituted with 1, 2, or 3  $R_{200}$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyridyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyridazinyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyrimidinyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyrazinyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -furyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -indolyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -thienyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyrrolyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyrazolyl;  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -benzoxazolyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -imidazolyl; each of the above heteroaryl groups is optionally substituted with 1, 2, 3, or 4  $R_{200}$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -imidazolidinyl;  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -tetrahydrofuryl;  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -tetrahydropyranyl;  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -piperazinyl;  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyrrolidinyl;  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -piperidinyl;  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -indolinyl; each of the above heterocycloalkyl groups is optionally substituted with 1, 2, 3, or 4  $R_{210}$ ;  $(\text{CH}_2)_{0-1}-\text{CH}((\text{CH}_2)_{0-4}-\text{OH})-(\text{CH}_2)_{0-1}$ -phenyl;  $-(\text{CH}_2)_{0-1}-\text{CH}(\text{C}_1-\text{C}_4 \text{ hydroxyalkyl})-(\text{CH}_2)_{0-1}$ -pyridyl;

$R_{200}$  at each occurrence is independently  $\text{C}_1-\text{C}_6$  alkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups; OH;  $-\text{NO}_2$ ; halogen;  $-\text{CO}_2\text{H}$ ;  $\text{C}\equiv\text{N}$ ;  $-(\text{CH}_2)_{0-4}-\text{CO}-\text{NR}_{220}\text{R}_{225}$ ;  $-(\text{CH}_2)_{0-4}-\text{CO}-(\text{C}_1-\text{C}_8 \text{ alkyl})$ ;  $-(\text{CH}_2)_{0-4}-\text{CO}_2\text{R}_{215}$ ; and  $-(\text{CH}_2)_{0-4}-\text{O}-(\text{C}_1-\text{C}_6 \text{ alkyl})$  optionally substituted with 1, 2, 3, or 5 -F);

$R_{205}$  at each occurrence is independently  $\text{C}_1-\text{C}_6$  alkyl, halogen, -OH, -O-phenyl, -SH,  $-\text{C}\equiv\text{N}$ ,  $-\text{CF}_3$ ,  $\text{C}_1-\text{C}_6$  alkoxy,  $\text{NH}_2$ ,  $\text{NH}(\text{C}_1-\text{C}_6 \text{ alkyl})$ , and  $\text{N}-(\text{C}_1-\text{C}_6 \text{ alkyl})(\text{C}_1-\text{C}_6 \text{ alkyl})$ ;

$R_{210}$  at each occurrence is independently  $\text{C}_1-\text{C}_6$  alkyl optionally substituted with 1 or 2  $R_{205}$  groups; halogen;  $\text{C}_1-\text{C}_4$  alkoxy;  $\text{C}_1-\text{C}_4$  haloalkoxy;  $-\text{NR}_{220}\text{R}_{225}$ ; OH;  $\text{C}\equiv\text{N}$ ;  $\text{C}_3-\text{C}_7$  cycloalkyl optionally

substituted with 1 or 2  $R_{205}$  groups;  $-\text{CO}-(\text{C}_1-\text{C}_4 \text{ alkyl})$ ;  $-\text{SO}_2-\text{NR}_{235}\text{R}_{240}$ ;  $-\text{CO}-\text{NR}_{235}\text{R}_{240}$ ;  $-\text{SO}_2-(\text{C}_1-\text{C}_4 \text{ alkyl})$ ; and  $=\text{O}$ ; wherein

$R_{215}$  at each occurrence is independently  $\text{C}_1-\text{C}_6$  alkyl,  $-(\text{CH}_2)_{0-2}-(\text{phenyl})$ ,  $\text{C}_3-\text{C}_6$  cycloalkyl,  $-(\text{CH}_2)_{0-2}-(\text{pyridyl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{pyrrolyl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{imidazolyl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{pyrimidyl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{pyrrolidinyl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{imidazolidinyl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{piperazinyl})$ ,  $-(\text{CH}_2)_{0-2}-(\text{piperidinyl})$ , and  $-(\text{CH}_2)_{0-2}-(\text{morpholinyl})$ ; wherein the phenyl group at each occurrence is optionally substituted with 1 or 2 groups that are independently  $R_{205}$  or  $R_{210}$ ; wherein each heterocycloalkyl group at each occurrence is optionally substituted with 1 or 2  $R_{210}$ ; wherein each heteroaryl group at each occurrence is optionally substituted with 1 or 2  $R_{210}$ ;

$R_{220}$  and  $R_{225}$  at each occurrence are independently  $-\text{H}$ ,  $-\text{C}_1-\text{C}_4$  alkyl, hydroxy  $\text{C}_1-\text{C}_4$  alkyl, halo  $\text{C}_1-\text{C}_4$  alkyl;  $-\text{C}_3-\text{C}_6$  cycloalkyl, and  $-(\text{C}_1-\text{C}_4 \text{ alkyl})-\text{O}-(\text{C}_1-\text{C}_2 \text{ alkyl})$ ;

$R_{235}$  and  $R_{240}$  at each occurrence are independently  $\text{H}$ , or  $\text{C}_1-\text{C}_6$  alkyl;

$R_{245}$  and  $R_{250}$  at each occurrence are independently  $\text{H}$ ,  $\text{C}_1-\text{C}_4$  alkyl,  $\text{C}_1-\text{C}_4$  hydroxyalkyl,  $\text{C}_1-\text{C}_4$  alkoxy,  $\text{C}_1-\text{C}_4$  haloalkoxy, or

$R_{245}$  and  $R_{250}$  are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, or 6 carbon atoms.

Other preferred compounds of formula I-3 include compounds wherein

MBHB No. 02-760-A  
Pharmacia No. 01182.US1  
Elan No. 00419-US-NEW

X is-C<sub>1</sub>-C<sub>3</sub> alkylidenyl optionally optionally substituted with 1 or 2 methyl groups;

Z is SO<sub>2</sub>; SO; S; or C(O);

Y is C<sub>1</sub>-C<sub>4</sub> haloalkyl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 or 2 substituents which can be the same or different and are selected from halogen, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> thioalkoxy, and C<sub>1</sub>-C<sub>4</sub> haloalkoxy; C<sub>1</sub>-C<sub>4</sub> alkoxy; phenyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; and benzyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkoxy, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; benzyl; and C<sub>3</sub>-C<sub>6</sub> cycloalkyl C<sub>1</sub>-C<sub>2</sub> alkyl; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula I-3 also include those of formula I-4, i.e., compounds of formula I-3 wherein

X is-C<sub>1</sub>-C<sub>3</sub> alkylidenyl optionally optionally substituted with 1 methyl group;

Z is SO<sub>2</sub>; SO; S; or C(O);

Y is OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); phenyl; benzyl; or C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 or 2 substituents which can be the same or different and are selected

from halogen, hydroxy, methoxy, ethoxy, thiomethoxy, thioethoxy, and  $\text{CF}_3$ ; wherein

$\text{Y}_1$  and  $\text{Y}_2$  are the same or different and are H;  $\text{C}_1\text{-C}_4$  alkyl optionally substituted with 1 or 2 substituents selected from halogen, methoxy, ethoxy, cyclopropyl, and OH; or

$-\text{N}(\text{Y}_1)(\text{Y}_2)$  forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1 or 2 groups that are independently  $\text{C}_1\text{-C}_4$  alkyl,  $\text{C}_1\text{-C}_4$  alkoxy, or halogen;

$\text{R}_1$  is benzyl which is optionally substituted with 1, 2, or 3 groups independently selected from methyl, ethyl, n-propyl, isopropyl, hydroxymethyl, monohalomethyl, dihalomethyl, trihalomethyl,  $-\text{CH}_2\text{CF}_3$ , methoxymethyl, halogen, methoxy, ethoxy, n-propyloxy, isopropyloxy, and OH;

$\text{R}_2$  and  $\text{R}_3$  are independently H or  $\text{C}_1\text{-C}_4$  alkyl;

$\text{R}_c$  is  $\text{C}_1\text{-C}_6$  alkyl optionally substituted with 1, 2, or 3  $\text{R}_{205}$  groups; cyclopropyl, cyclopropylmethyl, cyclopentyl, cyclopentylmethyl, cyclohexyl, cyclohexylmethyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -phenyl optionally substituted with 1 or 2  $\text{R}_{200}$  groups;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyridyl optionally substituted with 1 or 2  $\text{R}_{200}$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -piperazinyl; or  $(\text{CR}_{245}\text{R}_{250})_{0-3}$ -pyrrolidinyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}$ -piperidinyl; each of the above heterocycloalkyl groups is optionally substituted with 1 or 2  $\text{R}_{210}$  groups;

$\text{R}_{200}$  at each occurrence is independently selected from  $\text{C}_1\text{-C}_4$  alkyl optionally substituted with 1 or 2  $\text{R}_{205}$  groups; OH; and halogen;

R<sub>205</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, and C<sub>1</sub>-C<sub>4</sub> alkoxy;

R<sub>210</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 or 2 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>4</sub> alkoxy; OCF<sub>3</sub>; NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl); N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); OH; and -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); wherein

R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently selected from H, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 5, or 6 carbon atoms.

Preferred compounds of formulas I, I-1 and I-2 include compounds of formula I-5, i.e., those of formulae I, I-1 or I-2 wherein

R<sub>N</sub> is -C(=O)-(CRR')<sub>0-6</sub>R<sub>100</sub>; and

R<sub>100</sub> represents aryl, heteroaryl, or heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

-OR, -NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -C≡N, -OCF<sub>3</sub>, -CF<sub>3</sub>, -  
(CH<sub>2</sub>)<sub>0-4</sub>-O-P(=O)(OR)(OR'), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-O-(CH<sub>2</sub>)<sub>0-4</sub>-CONR<sub>102</sub>R'<sub>102</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>12</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkenyl), - (CH<sub>2</sub>)<sub>0-4</sub>-  
CO-(C<sub>2</sub>-C<sub>12</sub> alkynyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(CH<sub>2</sub>)<sub>0-4</sub>(C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO-(C<sub>1</sub>-C<sub>8</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>12</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-  
(CH<sub>2</sub>)<sub>0-4</sub>-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-

$N(R_{150})-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-R_{105}$ ,  
 $-(CH_2)_{0-4}-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-R_{140}$ ,  $-(CH_2)_{0-4}-O-CO-$   
 $(C_1-C_6 \text{ alkyl})$ ,  $-(CH_2)_{0-4}-O-P(O)-(O-R_{110})_2$ ,  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  
 $-(CH_2)_{0-4}-O-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-O-(R_{150})$ ,  $-(CH_2)_{0-4}-O-R_{150}'-COOH$ ,  
 $-(CH_2)_{0-4}-S-(R_{150})$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-C_3-C_7$   
 cycloalkyl,  $(C_2-C_{10})$ alkenyl, or  $(C_2-C_{10})$ alkynyl.

Preferred compounds of formula I-5 include compounds wherein

$R_N$  is  $-C(=O)-R_{100}$ ; and

$R_{100}$  represents aryl, or heteroaryl, where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

$-OR$ ,  $-NO_2$ ,  $C_1-C_6$  alkyl, halogen,  $-C\equiv N$ ,  $-OCF_3$ ,  $-CF_3$ ,  $-(CH_2)_{0-4}-O-P(=O)(OR)(OR')$ ,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  
 $-(CH_2)_{0-4}-O-(CH_2)_{0-4}-CONR_{102}R_{102}'$ ,  $-(CH_2)_{0-4}-CO-(C_1-C_{12} \text{ alkyl})$ ,  
 $-(CH_2)_{0-4}-CO-(C_2-C_{12} \text{ alkenyl})$ ,  $-(CH_2)_{0-4}-CO-(C_2-C_{12} \text{ alkynyl})$ ,  
 $-(CH_2)_{0-4}-CO-(CH_2)_{0-4}(C_3-C_7 \text{ cycloalkyl})$ ,  $-(CH_2)_{0-4}-R_{110}$ ,  $-(CH_2)_{0-4}-R_{120}$ ,  
 $-(CH_2)_{0-4}-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{110}$ ,  $-(CH_2)_{0-4}-CO-R_{120}$ ,  
 $-(CH_2)_{0-4}-CO-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{140}$ ,  $-(CH_2)_{0-4}-CO-O-R_{150}$ ,  
 $-(CH_2)_{0-4}-SO_2-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-SO-(C_1-C_8 \text{ alkyl})$ ,  
 $-(CH_2)_{0-4}-SO_2-(C_1-C_{12} \text{ alkyl})$ ,  $-(CH_2)_{0-4}-SO_2-(CH_2)_{0-4}-(C_3-C_7 \text{ cycloalkyl})$ ,  
 $-(CH_2)_{0-4}-N(R_{150})-CO-O-R_{150}$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-CS-N(R_{150})_2$ ,  
 $-(CH_2)_{0-4}-N(R_{150})-CO-R_{105}$ ,  $-(CH_2)_{0-4}-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-R_{140}$ ,  $-(CH_2)_{0-4}-O-CO-$   
 $(C_1-C_6 \text{ alkyl})$ ,  $-(CH_2)_{0-4}-O-P(O)-(O-R_{110})_2$ ,  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  
 $-(CH_2)_{0-4}-O-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-O-(R_{150})$ ,  $-(CH_2)_{0-4}-O-R_{150}'-COOH$ ,  
 $-(CH_2)_{0-4}-S-(R_{150})$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-C_3-C_7$   
 cycloalkyl,  $(C_2-C_{10})$ alkenyl, or  $(C_2-C_{10})$ alkynyl.



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Preferred compounds of formula I-5 also include compounds wherein

$R_N$  is  $-C(=O)$ -aryl or  $-C(=O)$ -heteroaryl where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

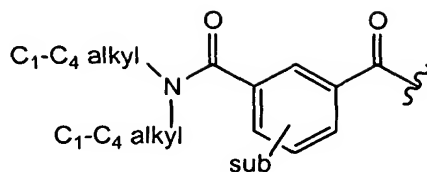
$-OR$ ,  $-NO_2$ ,  $C_1$ - $C_6$  alkyl, halogen,  $-C\equiv N$ ,  $-OCF_3$ ,  $-CF_3$ ,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-O-(CH_2)_{0-4}-CONR_{102}R_{102}'$ ,  $-(CH_2)_{0-4}-CO-(C_1-C_{12}$  alkyl),  $-(CH_2)_{0-4}-CO-(C_2-C_{12}$  alkenyl),  $-(CH_2)_{0-4}-CO-(C_2-C_{12}$  alkynyl),  $-(CH_2)_{0-4}-R_{110}$ ,  $-(CH_2)_{0-4}-R_{120}$ ,  $-(CH_2)_{0-4}-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{110}$ ,  $-(CH_2)_{0-4}-CO-R_{120}$ ,  $-(CH_2)_{0-4}-CO-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{140}$ ,  $-(CH_2)_{0-4}-CO-O-R_{150}$ ,  $-(CH_2)_{0-4}-SO_2-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-SO-(C_1-C_8$  alkyl),  $-(CH_2)_{0-4}-SO_2-(C_1-C_{12}$  alkyl),  $-(CH_2)_{0-4}-N(R_{150})-CO-O-R_{150}$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-R_{105}$ ,  $-(CH_2)_{0-4}-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-R_{140}$ ,  $-(CH_2)_{0-4}-O-CO-(C_1-C_6$  alkyl),  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-O-(R_{150})$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-C_3-C_7$  cycloalkyl,  $(C_2-C_{10})$  alkenyl, or  $(C_2-C_{10})$  alkynyl.

Other preferred compounds of formula I-5 include compounds wherein

$R_N$  is  $-C(=O)$ -aryl or  $-C(=O)$ -heteroaryl where the ring portions of each are optionally substituted with 1 or 2 groups independently selected from

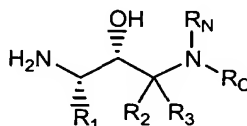
$C_1$ - $C_6$  alkyl, halogen,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-SO_2-NR_{105}R'_{105}$ ,  $C_3-C_7$  cycloalkyl,  $(C_2-C_{10})$  alkenyl,  $-(CH_2)_{0-4}-R_{110}$ ,  $-(CH_2)_{0-4}-R_{120}$ ,  $-(CH_2)_{0-4}-R_{130}$ , or  $(C_2-C_{10})$  alkynyl.

Other preferred compounds of formula I-5 also include compounds wherein  $R_N$  is:



wherein sub is hydrogen or is C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -  
 (CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
 N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, C<sub>3</sub>-C<sub>7</sub>  
 cycloalkyl, -(C<sub>2</sub>-C<sub>10</sub>)alkenyl, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
 R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, or (C<sub>2</sub>-C<sub>10</sub>)alkynyl.

A preferred stereochemistry for compounds of formula  
 I is as follows:



(I)

Preferred compounds of formula X include those of  
 formula X-1, i.e., compounds of formula X wherein

R<sub>1</sub> is aryl, heteroaryl, heterocyclyl, -C<sub>1</sub>-C<sub>6</sub> alkyl-aryl, -  
 C<sub>1</sub>-C<sub>6</sub> alkyl-heteroaryl, or -C<sub>1</sub>-C<sub>6</sub> alkyl-  
 heterocyclyl, where the ring portions of each  
 are optionally substituted with 1, 2, 3, or 4  
 groups independently selected from halogen, -  
 OH, -SH, -C≡N, -NO<sub>2</sub>, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -  
 N(R)COR', or -N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl,  
 -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-  
 amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>)  
 alkyl, or

C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2,  
 or 3 groups which are independently  
 selected from halogen, or

C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula X-1 also include those wherein

R<sub>1</sub> is -C<sub>1</sub>-C<sub>6</sub> alkyl-aryl, -C<sub>1</sub>-C<sub>6</sub> alkyl-heteroaryl, or -C<sub>1</sub>-C<sub>6</sub> alkyl-heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, -OH, -SH, -C≡N, -NO<sub>2</sub>, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -N(R)COR', or -N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl, -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or

C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or

C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula X-1 further include those wherein

R<sub>1</sub> is -(CH<sub>2</sub>)-aryl, -(CH<sub>2</sub>)-heteroaryl, or -(CH<sub>2</sub>)-

heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, -OH, -SH, -C≡N, -NO<sub>2</sub>, -NR<sub>105</sub>R'<sub>105</sub>, -CO<sub>2</sub>R, -N(R)COR', or -N(R)SO<sub>2</sub>R', -C(=O)-(C<sub>1</sub>-C<sub>4</sub>) alkyl, -SO<sub>2</sub>-amino, -SO<sub>2</sub>-mono or dialkylamino, -C(=O)-amino, -C(=O)-mono or dialkylamino, -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub>) alkyl, or

C<sub>1</sub>-C<sub>6</sub> alkoxy optionally substituted with 1, 2, or 3 groups which are independently selected from halogen, or

C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, -C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino, or

C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, -C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, mono- or dialkylamino and -C<sub>1</sub>-C<sub>3</sub> alkyl, or

C<sub>2</sub>-C<sub>10</sub> alkenyl or C<sub>2</sub>-C<sub>10</sub> alkynyl each of which is optionally substituted with 1, 2, or 3 groups independently selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, amino, C<sub>1</sub>-C<sub>6</sub> alkyl and mono- or dialkylamino; and the heterocyclyl group is optionally further substituted with oxo.

Preferred compounds of formula X-1 also include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl or -CH<sub>2</sub>-pyridinyl where the ring portions of each are optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, hydroxy, -NO<sub>2</sub>, and

C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1, 2, or 3 substituents independently selected from halogen, OH, SH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), C≡N, CF<sub>3</sub>.

Preferred compounds of formula X-1 further include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl or -CH<sub>2</sub>-pyridinyl where the phenyl or pyridinyl rings are each optionally substituted with

1 or 2 groups independently selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>2</sub> alkoxy, hydroxy, -CF<sub>3</sub>, and -NO<sub>2</sub>.

Preferred compounds of formula X-1 include those wherein

R<sub>1</sub> is -CH<sub>2</sub>-phenyl where the phenyl ring is optionally substituted with 2 groups independently selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>2</sub> alkoxy, hydroxy, and -NO<sub>2</sub>.

Preferred compounds of formula X-1 also include those wherein R<sub>1</sub> is benzyl, or 3,5-difluorobenzyl.

Preferred compounds of formula X or X-1 include those of formula X-2, i.e., compounds of formula X or X-1 wherein

R<sub>2</sub> and R<sub>3</sub> are independently selected from H or C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of C<sub>1</sub>-C<sub>3</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, and -NR<sub>1-a</sub>R<sub>1-b</sub>.

Preferred compounds of formula X-2 include those wherein

R<sub>c</sub> is selected from the group consisting of C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -OC=ONR<sub>235</sub>R<sub>240</sub>, -S(=O)<sub>0-2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -SH, -NR<sub>235</sub>C=ONR<sub>235</sub>R<sub>240</sub>, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>8</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -CO<sub>2</sub>H, and -CO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-aryl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heteroaryl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heterocycloalkyl; -[C(R<sub>255</sub>)(R<sub>260</sub>)]<sub>1-3</sub>-CO-N-(R<sub>255</sub>)<sub>2</sub>; -CH(aryl)<sub>2</sub>; -CH(heteroaryl)<sub>2</sub>; -CH(heterocycloalkyl)<sub>2</sub>; -CH(aryl)(heteroaryl); -CO-NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-1</sub>-

$\text{CH}((\text{CH}_2)_{0-6}-\text{OH})-(\text{CH}_2)_{0-1}-\text{aryl};$      $-(\text{CH}_2)_{0-1}-\text{CHR}_{\text{C-6}}-(\text{CH}_2)_{0-1}-$   
heteroaryl;     $-\text{CH}(-\text{aryl} \text{ or } -\text{heteroaryl})-\text{CO}-\text{O}(\text{C}_1-\text{C}_4$   
alkyl);     $-\text{CH}(-\text{CH}_2-\text{OH})-\text{CH}(\text{OH})-\text{phenyl}-\text{NO}_2$ ;     $(\text{C}_1-\text{C}_6 \text{ alkyl})-$   
 $\text{O}-(\text{C}_1-\text{C}_6 \text{ alkyl})-\text{OH}$ ;     $-\text{CH}_2-\text{NH}-\text{CH}_2-\text{CH}(-\text{O}-\text{CH}_2-\text{CH}_3)_2$ ;     $-\text{H}$ ;  
and  $-(\text{CH}_2)_{0-6}-\text{C}(=\text{NR}_{235})(\text{NR}_{235}\text{R}_{240})$ ; wherein

each aryl is optionally substituted with 1, 2, or 3  
R<sub>200</sub>;

each heteroaryl is optionally substituted with 1, 2,  
3, or 4 R<sub>200</sub>;

each heterocycloalkyl is optionally substituted with  
1, 2, 3, or 4 R<sub>210</sub>;

R<sub>200</sub> at each occurrence is independently selected  
from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl  
optionally substituted with 1, 2, or 3 R<sub>205</sub>  
groups; OH; -NO<sub>2</sub>; halogen; -CO<sub>2</sub>H; C≡N;  $-(\text{CH}_2)_{0-4}-$   
 $\text{CO}-\text{NR}_{220}\text{R}_{225}$ ;  $-(\text{CH}_2)_{0-4}-\text{CO}-(\text{C}_1-\text{C}_{12} \text{ alkyl})$ ;  $-(\text{CH}_2)_{0-4}-$   
 $\text{CO}_2\text{R}_{215}$ ; and  $-(\text{CH}_2)_{0-4}-\text{O}-(\text{C}_1-\text{C}_6 \text{ alkyl})$  optionally  
substituted with 1, 2, 3, or 5 -F);

wherein each aryl group at each occurrence is  
optionally substituted with 1, 2, or 3  
groups that are independently R<sub>205</sub>, R<sub>210</sub> or  
C<sub>1</sub>-C<sub>6</sub> alkyl substituted with 1, 2, or 3  
groups that are independently R<sub>205</sub> or R<sub>210</sub>;

wherein each heterocycloalkyl group at each  
occurrence is optionally substituted with  
1, 2, or 3 groups that are independently  
R<sub>210</sub>;

wherein each heteroaryl group at each  
occurrence is optionally substituted with  
1, 2, or 3 groups that are independently  
R<sub>205</sub>, R<sub>210</sub>, or C<sub>1</sub>-C<sub>6</sub> alkyl substituted with  
1, 2, or 3 groups that are independently  
R<sub>205</sub> or R<sub>210</sub>;

- R<sub>205</sub> at each occurrence is independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -OH, -O-phenyl, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>6</sub> alkoxy, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), and N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl);
- R<sub>210</sub> at each occurrence is independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>6</sub> alkoxy; C<sub>1</sub>-C<sub>6</sub> haloalkoxy; -NR<sub>220</sub>R<sub>225</sub>; OH; C≡N; C<sub>3</sub>-C<sub>7</sub> cycloalkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); -SO<sub>2</sub>-NR<sub>235</sub>R<sub>240</sub>; -CO-NR<sub>235</sub>R<sub>240</sub>; -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); and =O; wherein
- R<sub>215</sub> at each occurrence is independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub> alkyl, -(CH<sub>2</sub>)<sub>0-2</sub>-(aryl), C<sub>3</sub>-C<sub>7</sub> cycloalkyl, and -(CH<sub>2</sub>)<sub>0-2</sub>-(heteroaryl), -(CH<sub>2</sub>)<sub>0-2</sub>-(heterocycloalkyl); wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 groups that are independently R<sub>205</sub> or R<sub>210</sub>; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>210</sub>; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>210</sub>;
- R<sub>220</sub> and R<sub>225</sub> at each occurrence are independently selected from the group consisting of -H, -C<sub>1</sub>-C<sub>6</sub> alkyl, hydroxy C<sub>1</sub>-C<sub>6</sub> alkyl, amino C<sub>1</sub>-C<sub>6</sub> alkyl; halo C<sub>1</sub>-C<sub>6</sub> alkyl; -C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>3</sub> alkyl), -aryl, -heteroaryl, and -heterocycloalkyl; wherein the aryl group at each occurrence is optionally substituted with 1, 2, or 3 R<sub>270</sub> groups, each heteroaryl is



optionally substituted with 1, 2, 3, or 4  $R_{200}$ ,  
each heterocycloalkyl is optionally substituted  
with 1, 2, 3, or 4  $R_{210}$  wherein

$R_{270}$  at each occurrence is independently  $R_{205}$ ,  $C_1$ - $C_6$   
alkyl optionally substituted with 1, 2, or 3  
 $R_{205}$  groups; halogen;  $C_1$ - $C_6$  alkoxy;  $C_1$ - $C_6$   
haloalkoxy;  $NR_{235}R_{240}$ ; OH;  $C\equiv N$ ;  $-CO-(C_1-C_4 \text{ alkyl})$ ;  
and  $=O$ ; wherein the heterocycloalkyl group at  
each occurrence is optionally substituted with  
1, 2, or 3  $R_{205}$  groups; wherein each heteroaryl  
group at each occurrence is optionally  
substituted with 1, 2, or 3  $R_{205}$  groups;

$R_{235}$  and  $R_{240}$  at each occurrence are independently H,  
or  $C_1$ - $C_6$  alkyl;

$R_{245}$  and  $R_{250}$  at each occurrence are independently  
selected from the group consisting of H,  $C_1$ - $C_4$   
alkyl,  $C_1$ - $C_4$  hydroxyalkyl,  $C_1$ - $C_4$  alkoxy,  $C_1$ - $C_4$   
haloalkoxy, or

$R_{245}$  and  $R_{250}$  are taken together with the carbon to  
which they are attached to form a carbocycle of  
3, 4, 5, 6, or 7 carbon atoms, wherein the  
carbocycle is optionally substituted with 1 or  
2 groups that are independently OH, methyl, Cl,  
F,  $OCH_3$ ,  $CF_3$ ,  $NO_2$ , or CN;

$R_{255}$  and  $R_{260}$  at each occurrence are independently  
selected from the group consisting of H;  $C_1$ - $C_6$   
alkyl optionally substituted with 1, 2, or 3  
 $R_{205}$  groups;  $-(CH_2)_{0-4}-C_3-C_7$  cycloalkyl optionally  
substituted with 1, 2, or 3  $R_{205}$  groups;  $-(C_1-C_4$   
alkyl)-aryl;  $-(C_1-C_4 \text{ alkyl})$ -heteroaryl;  $-(C_1-C_4$   
alkyl)-heterocycloalkyl; aryl; heteroaryl;  
heterocycloalkyl;  $-(CH_2)_{1-4}-R_{265}-(CH_2)_{0-4}$ -aryl;

$-(\text{CH}_2)_{1-4}-\text{R}_{265}-(\text{CH}_2)_{0-4}-\text{heteroaryl}$ ; and;  $-(\text{CH}_2)_{1-4}-\text{R}_{265}-(\text{CH}_2)_{0-4}-\text{heterocycloalkyl}$ ; wherein

$\text{R}_{265}$  at each occurrence is independently  $-\text{O}-$ ,  $-\text{S}-$  or  $-\text{N}(\text{C}_1-\text{C}_6 \text{ alkyl})-$ ;

each aryl or phenyl is optionally substituted with 1, 2, or 3 groups that are independently  $\text{R}_{205}$ ,  $\text{R}_{210}$ , or  $\text{C}_1-\text{C}_6$  alkyl substituted with 1, 2, or 3 groups that are independently  $\text{R}_{205}$  or  $\text{R}_{210}$ .

Preferred compounds of formula X-2 include those wherein:

$\text{R}_C$  is  $-(\text{CR}_{245}\text{R}_{250})_{0-4}-\text{aryl}$ , or  $-(\text{CR}_{245}\text{R}_{250})_{0-4}-\text{heteroaryl}$ , wherein aryl and heteroaryl are optionally substituted with 1, 2, or 3  $\text{R}_{200}$  groups.

Preferred compounds of formula X-2 also include compounds wherein

$\text{R}_C$  is  $-(\text{CR}_{245}\text{R}_{250})-\text{aryl}$ , or  $-(\text{CR}_{245}\text{R}_{250})-\text{heteroaryl}$  wherein each aryl and heteroaryl is optionally substituted with 1, 2, or 3  $\text{R}_{200}$  groups.

Preferred compounds of formula X-2 also include compounds wherein

$\text{R}_C$  is  $-(\text{CH}_2)-\text{aryl}$ , or  $-(\text{CH}_2)-\text{heteroaryl}$ , wherein each aryl and heteroaryl is optionally substituted with 1, 2, or 3 groups selected from  $\text{OH}$ ,  $-\text{NO}_2$ , halogen,  $-\text{CO}_2\text{H}$ ,  $\text{C}\equiv\text{N}$ ,  $-(\text{CH}_2)_{0-4}-\text{CO}-\text{NR}_{220}\text{R}_{225}$ ,  $-(\text{CH}_2)_{0-4}-\text{CO}-(\text{C}_1-\text{C}_{12} \text{ alkyl})$ , and  $-(\text{CH}_2)_{0-4}-\text{SO}_2-\text{NR}_{220}\text{R}_{225}$ .

Preferred compounds of formula X-2 also include compounds wherein

$\text{R}_C$  is  $-(\text{CH}_2)-\text{aryl}$ , wherein aryl is optionally substituted with 1, 2, or 3 groups selected from  $\text{OH}$ ,  $-\text{NO}_2$ , halogen,  $-\text{CO}_2\text{H}$ , and  $\text{C}\equiv\text{N}$ .

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Pharmacia No. 01182.US1  
Elan No. 00419-US-NEW

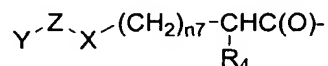
Preferred compounds of formula X-2 also include compounds wherein

R<sub>C</sub> is -(CH<sub>2</sub>)-phenyl, wherein phenyl is optionally substituted with 1, 2, or 3 groups selected from OH, -NO<sub>2</sub>, halogen, -CO<sub>2</sub>H, and C≡N.

Preferred compounds of formula X-2 also include compounds wherein R<sub>C</sub> is benzyl.

Other preferred compounds of formulas X, X-1 or X-2 include compounds of formula X-3, i.e., those of formulas X, X-1 or X-2 wherein

R<sub>N</sub> is:



wherein

R<sub>4</sub> is NH<sub>2</sub>; -NH-(CH<sub>2</sub>)<sub>n6</sub>-R<sub>4-1</sub>; -NHR<sub>8</sub>; -NR<sub>50</sub>C(O)R<sub>5</sub>; or -NR<sub>50</sub>CO<sub>2</sub>R<sub>51</sub>;

wherein

n<sub>6</sub> is 0, 1, 2, or 3;

n<sub>7</sub> is 0, 1, 2, or 3;

R<sub>4-1</sub> is selected from the group consisting of -SO<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyl), -SO-(C<sub>1</sub>-C<sub>8</sub> alkyl), -S-(C<sub>1</sub>-C<sub>8</sub> alkyl), -S-CO-(C<sub>1</sub>-C<sub>6</sub> alkyl), -SO<sub>2</sub>-NR<sub>4-2</sub>R<sub>4-3</sub>; -CO-C<sub>1</sub>-C<sub>2</sub> alkyl; -CO-NR<sub>4-3</sub>R<sub>4-4</sub>;

R<sub>4-2</sub> and R<sub>4-3</sub> are independently H, C<sub>1</sub>-C<sub>3</sub> alkyl, or C<sub>3</sub>-C<sub>6</sub> cycloalkyl;

R<sub>4-4</sub> is alkyl, phenylalkyl, C<sub>2</sub>-C<sub>4</sub> alkanoyl, or phenylalkanoyl;

R<sub>5</sub> is cyclopropyl; cyclobutyl; cyclopentyl; or cyclohexyl; wherein each cycloalkyl group is optionally substituted with one or two groups that are C<sub>1</sub>-C<sub>6</sub> alkyl, more preferably C<sub>1</sub>-C<sub>2</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, more preferably C<sub>1</sub>-C<sub>2</sub> alkoxy, CF<sub>3</sub>, OH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), halogen, CN, or

NO<sub>2</sub>; or the cycloalkyl group is substituted with 1 or 2 groups that are independently CF<sub>3</sub>, Cl, F, methyl, ethyl or cyano; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, -NR<sub>6</sub>R<sub>7</sub>, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl, C<sub>5</sub>-C<sub>6</sub> heteroaryl, phenyl, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -S-C<sub>1</sub>-C<sub>4</sub> alkyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, -CO<sub>2</sub>H, -CONR<sub>6</sub>R<sub>7</sub>, -CO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, or phenyloxy; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>1</sub>-C<sub>4</sub> haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, or C<sub>2</sub>-C<sub>4</sub> alkanoyl; phenyl optionally substituted with 1, 2, 3, or 4 groups that are independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein

R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, and phenyl C<sub>1</sub>-C<sub>4</sub> alkyl;  
R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl or halogen;, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

R<sub>9</sub> is phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;

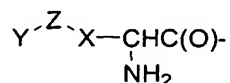
R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>51</sub> is selected from the group consisting of phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> or -C<sub>1</sub>-C<sub>4</sub> alkoxy; heterocycloalkyl optionally

substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; heterocycloalkylalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl, wherein the phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy.

Preferred compounds of formula X-3 include compounds wherein

R<sub>N</sub> is



wherein

X is C<sub>1</sub>-C<sub>4</sub> alkylidenyl optionally substituted with 1, 2, or 3 methyl groups; or -NR<sub>4-6</sub>-; or

$R_4$  and  $R_{4-6}$  combine to form  $-(CH_2)_{n_{10}}-$ , wherein

$n_{10}$  is 1, 2, 3, or 4;

Z is selected from a bond;  $SO_2$ ; SO; S; and C(O);

Y is selected from H;  $C_1-C_4$  haloalkyl;  $C_5-C_6$  heterocycloalkyl containing at least one N, O, or S; phenyl; OH;  $-N(Y_1)(Y_2)$ ;  $C_1-C_{10}$  alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy;  $C_3-C_8$  cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from  $C_1-C_3$  alkyl, and halogen; alkoxy; phenyl optionally substituted with halogen,  $C_1-C_4$  alkyl,  $C_1-C_4$  alkoxy, CN or  $NO_2$ ; phenyl  $C_1-C_4$  alkyl optionally substituted with halogen,  $C_1-C_4$  alkyl,  $C_1-C_4$  alkoxy, CN or  $NO_2$ ; wherein

$Y_1$  and  $Y_2$  are the same or different and are H;  $C_1-C_{10}$  alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen,  $C_1-C_4$  alkoxy,  $C_3-C_8$  cycloalkyl, and OH;  $C_2-C_6$  alkenyl;  $C_2-C_6$  alkanoyl; phenyl;  $-SO_2-$   $C_1-C_4$  alkyl; phenyl  $C_1-C_4$  alkyl; and  $C_3-C_8$  cycloalkyl  $C_1-C_4$  alkyl; or

$-N(Y_1)(Y_2)$  forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently  $C_1-C_6$  alkyl,  $C_1-C_6$  alkoxy,  $C_1-C_6$  alkoxy  $C_1-C_6$  alkyl, or halogen.

Preferred compounds of formula X-3 include compounds wherein

X is  $C_1-C_4$  alkylidenyl optionally substituted with 1, 2, or 3 methyl groups;

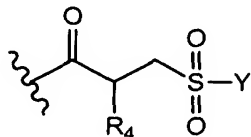
Z is selected from  $SO_2$ ; SO; S; and C(O);

Y is selected from H; C<sub>1</sub>-C<sub>4</sub> haloalkyl; C<sub>5</sub>-C<sub>6</sub> heterocycloalkyl containing at least one N, O, or S; phenyl; OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from the group consisting of halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy; C<sub>3</sub>-C<sub>8</sub> cycloalkyl optionally substituted with 1, 2, or 3 groups independently selected from C<sub>1</sub>-C<sub>3</sub> alkyl, and halogen; alkoxy; phenyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkenyl; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; or C<sub>3</sub>-C<sub>8</sub> cycloalkyl C<sub>1</sub>-C<sub>4</sub> alkyl; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula X-3 include compounds wherein R<sub>N</sub> is



and wherein R<sub>4</sub> is NH<sub>2</sub>; -NH-(CH<sub>2</sub>)<sub>n6</sub>-R<sub>4-1</sub>; -NHR<sub>8</sub>; -NR<sub>50</sub>C(O)R<sub>5</sub>; or -NR<sub>50</sub>CO<sub>2</sub>R<sub>51</sub> wherein

$n_6$  is 0, 1, 2, or 3;

$n_7$  is 0, 1, 2, or 3;

$R_{4-1}$  is selected from the group consisting of  $-\text{SO}_2-$  ( $\text{C}_1-\text{C}_8$  alkyl),  $-\text{SO}-$  ( $\text{C}_1-\text{C}_8$  alkyl),  $-\text{S}-$  ( $\text{C}_1-\text{C}_8$  alkyl),  $-\text{S}-\text{CO}-$  ( $\text{C}_1-\text{C}_6$  alkyl),  $-\text{SO}_2-\text{NR}_{4-2}\text{R}_{4-3}$ ;  $-\text{CO}-\text{C}_1-\text{C}_2$  alkyl;  $-\text{CO}-\text{NR}_{4-3}\text{R}_{4-4}$ ;

$R_{4-2}$  and  $R_{4-3}$  are independently H,  $\text{C}_1-\text{C}_3$  alkyl, or  $\text{C}_3-\text{C}_6$  cycloalkyl;

$R_{4-4}$  is alkyl, phenylalkyl,  $\text{C}_2-\text{C}_4$  alkanoyl, or phenylalkanoyl;

$R_5$  is cyclopropyl; cyclobutyl; cyclopentyl; or cyclohexyl; wherein each cycloalkyl group is optionally substituted with one or two groups that are  $\text{C}_1-\text{C}_6$  alkyl, more preferably  $\text{C}_1-\text{C}_2$  alkyl,  $\text{C}_1-\text{C}_6$  alkoxy, more preferably  $\text{C}_1-\text{C}_2$  alkoxy,  $\text{CF}_3$ , OH,  $\text{NH}_2$ ,  $\text{NH}(\text{C}_1-\text{C}_6$  alkyl),  $\text{N}(\text{C}_1-\text{C}_6$  alkyl) ( $\text{C}_1-\text{C}_6$  alkyl), halogen, CN, or  $\text{NO}_2$ ; or the cycloalkyl group is substituted with 1 or 2 groups that are independently  $\text{CF}_3$ , Cl, F, methyl, ethyl or cyano;  $\text{C}_1-\text{C}_6$  alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen,  $-\text{NR}_6\text{R}_7$ ,  $\text{C}_1-\text{C}_4$  alkoxy,  $\text{C}_5-\text{C}_6$  heterocycloalkyl,  $\text{C}_5-\text{C}_6$  heteroaryl, phenyl,  $\text{C}_3-\text{C}_7$  cycloalkyl,  $-\text{S}-\text{C}_1-\text{C}_4$  alkyl,  $-\text{SO}_2-\text{C}_1-\text{C}_4$  alkyl,  $-\text{CO}_2\text{H}$ ,  $-\text{CONR}_6\text{R}_7$ ,  $-\text{CO}_2-\text{C}_1-\text{C}_4$  alkyl, or phenyloxy; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently  $\text{C}_1-\text{C}_4$  alkyl,  $\text{C}_1-\text{C}_4$  alkoxy, halogen,  $\text{C}_1-\text{C}_4$  haloalkyl, or OH; heterocycloalkyl optionally substituted with 1, 2, or 3 groups that are independently  $\text{C}_1-\text{C}_4$  alkyl,  $\text{C}_1-\text{C}_4$  alkoxy, halogen, or  $\text{C}_2-\text{C}_4$  alkanoyl; phenyl optionally substituted with 1, 2, 3, or 4 groups that are



independently halogen, OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or C<sub>1</sub>-C<sub>4</sub> haloalkyl; and -NR<sub>6</sub>R<sub>7</sub>; wherein R<sub>6</sub> and R<sub>7</sub> are independently selected from the group consisting of H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkanoyl, phenyl, -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl, and phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; R<sub>8</sub> is selected from the group consisting of -SO<sub>2</sub>-heteroaryl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl or halogen;, -SO<sub>2</sub>-aryl, -SO<sub>2</sub>-heterocycloalkyl, -C(O)NHR<sub>9</sub>, heterocycloalkyl, -S-C<sub>2</sub>-C<sub>4</sub> alkanoyl, wherein

R<sub>9</sub> is phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkyl, or H;  
R<sub>50</sub> is H or C<sub>1</sub>-C<sub>6</sub> alkyl; and

R<sub>51</sub> is selected from the group consisting of phenyl C<sub>1</sub>-C<sub>4</sub> alkyl; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 groups that are independently halogen, cyano, -NR<sub>6</sub>R<sub>7</sub>, -C(O)NR<sub>6</sub>R<sub>7</sub>, C<sub>3</sub>-C<sub>7</sub> or -C<sub>1</sub>-C<sub>4</sub> alkoxy; heterocycloalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; heterocycloalkylalkyl optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, C<sub>2</sub>-C<sub>4</sub> alkanoyl, phenyl C<sub>1</sub>-C<sub>4</sub> alkyl, and -SO<sub>2</sub> C<sub>1</sub>-C<sub>4</sub> alkyl; alkenyl; alkynyl; heteroaryl optionally substituted with 1, 2, or 3 groups that are independently OH, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); heteroarylalkyl optionally substituted with 1, 2, or 3 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl) or N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub>

alkyl); phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl, wherein the phenyl; C<sub>3</sub>-C<sub>8</sub> cycloalkyl, and cycloalkylalkyl groups are optionally substituted with 1, 2, 3, 4 or 5 groups that are independently halogen, CN, NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>2</sub>-C<sub>6</sub> alkanoyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, hydroxy, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> thioalkoxy, C<sub>1</sub>-C<sub>6</sub> thioalkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkoxy; and

Y is C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 thru 3 substituents which can be the same or different and are selected from halogen, hydroxy, alkoxy, thioalkoxy, and haloalkoxy.

Preferred compounds of formula X-3 further include compounds wherein

R<sub>C</sub> is C<sub>1</sub>-C<sub>8</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -OC=ONR<sub>235</sub>R<sub>240</sub>, -S(=O)<sub>0-2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -SH, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>8</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from the group consisting of R<sub>205</sub>, -CO<sub>2</sub>H, and -CO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-phenyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heteroaryl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-heterocycloalkyl; -(CH<sub>2</sub>)<sub>0-1</sub>-CH((CH<sub>2</sub>)<sub>0-4</sub>-OH)-(CH<sub>2</sub>)<sub>0-1</sub>-phenyl; -(CH<sub>2</sub>)<sub>0-1</sub>-CHR<sub>C-6</sub>-(CH<sub>2</sub>)<sub>0-1</sub>-heteroaryl; -CH(-CH<sub>2</sub>-OH)-CH(OH)-phenyl-NO<sub>2</sub>; (C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>6</sub> alkyl)-OH; or -(CH<sub>2</sub>)<sub>0-6</sub>-C(=NR<sub>235</sub>)(NR<sub>235</sub>R<sub>240</sub>); wherein each aryl is optionally substituted with 1, 2, or 3 R<sub>200</sub>;

each heteroaryl is optionally substituted with 1, 2, 3, or 4  $R_{200}$ ;

each heterocycloalkyl is optionally substituted with 1, 2, 3, or 4  $R_{210}$ ;

$R_{200}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups; OH;  $-NO_2$ ; halogen;  $-CO_2H$ ;  $C\equiv N$ ;  $-(CH_2)_{0-4}-CO-NR_{220}R_{225}$ ;  $-(CH_2)_{0-4}-CO-(C_1-C_{12} \text{ alkyl})$ ;  $-(CH_2)_{0-4}-CO_2R_{215}$ ; or  $-(CH_2)_{0-4}-O-(C_1-C_6 \text{ alkyl optionally substituted with 1, 2, 3, or 5 -F})$ ;

$R_{205}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl, halogen,  $-OH$ ,  $-O$ -phenyl,  $-SH$ ,  $-C\equiv N$ ,  $-CF_3$ ,  $C_1$ - $C_6$  alkoxy,  $NH_2$ ,  $NH(C_1-C_6 \text{ alkyl})$ , or  $N-(C_1-C_6 \text{ alkyl})(C_1-C_6 \text{ alkyl})$ ;

$R_{210}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups; halogen;  $C_1$ - $C_6$  alkoxy;  $C_1$ - $C_6$  haloalkoxy;  $-NR_{220}R_{225}$ ; OH;  $C\equiv N$ ;  $C_3$ - $C_7$  cycloalkyl optionally substituted with 1, 2, or 3  $R_{205}$  groups;  $-CO-(C_1-C_4 \text{ alkyl})$ ;  $-SO_2-NR_{235}R_{240}$ ;  $-CO-NR_{235}R_{240}$ ;  $-SO_2-(C_1-C_4 \text{ alkyl})$ ; and  $=O$ ; wherein

$R_{215}$  at each occurrence is independently  $C_1$ - $C_6$  alkyl,  $-(CH_2)_{0-2}-(\text{phenyl})$ ,  $C_3$ - $C_7$  cycloalkyl, and  $-(CH_2)_{0-2}-(\text{heteroaryl})$ ,  $-(CH_2)_{0-2}-(\text{heterocycloalkyl})$ ;

wherein the phenyl group at each occurrence is optionally substituted with 1, 2, or 3 groups that are independently  $R_{205}$  or  $R_{210}$ ; wherein the heterocycloalkyl group at each occurrence is optionally substituted with 1, 2, or 3  $R_{210}$ ; wherein each heteroaryl group at each occurrence is optionally substituted with 1, 2, or 3  $R_{210}$ ;

R<sub>220</sub> and R<sub>225</sub> at each occurrence are independently -H, -C<sub>1</sub>-C<sub>6</sub> alkyl, hydroxy C<sub>1</sub>-C<sub>6</sub> alkyl, halo C<sub>1</sub>-C<sub>6</sub> alkyl; -C<sub>3</sub>-C<sub>7</sub> cycloalkyl, and -(C<sub>1</sub>-C<sub>6</sub> alkyl)-O-(C<sub>1</sub>-C<sub>3</sub> alkyl);

R<sub>235</sub> and R<sub>240</sub> at each occurrence are independently H, or C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently H, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> haloalkoxy, or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, 6, or 7 carbon atoms.

Preferred compounds of formula X-3 include compounds wherein

R<sub>1</sub> is benzyl which is optionally substituted with 1, 2, 3, or 4 groups independently selected from halogen, C<sub>1</sub>-C<sub>4</sub> alkoxy, hydroxy, and C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1, 2, or 3 substituents halogen, OH, SH, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), N-(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl), C≡N, CF<sub>3</sub>;

R<sub>2</sub> and R<sub>3</sub> are independently selected from H or C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 substituent selected from halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, C<sub>1</sub>-C<sub>3</sub> alkoxy, NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl), and NH(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl);

R<sub>C</sub> is C<sub>1</sub>-C<sub>8</sub> alkyl optionally substituted with 1, 2, or 3 groups independently selected from R<sub>205</sub>, -SH, -C=ONR<sub>235</sub>R<sub>240</sub>, and -S(=O)<sub>2</sub>NR<sub>235</sub>R<sub>240</sub>; -(CH<sub>2</sub>)<sub>0-3</sub>-(C<sub>3</sub>-C<sub>6</sub>) cycloalkyl wherein the cycloalkyl is optionally substituted with 1, 2, or 3 groups independently selected from R<sub>205</sub>, -CO<sub>2</sub>H, and -CO<sub>2</sub>-(C<sub>1</sub>-C<sub>4</sub> alkyl); -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-4</sub>-phenyl optionally substituted with 1, 2, or 3 R<sub>200</sub>; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyridyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyridazinyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrimidinyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-

pyrazinyl;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-furyl}$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-indolyl}$ ;  
 $-(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-thienyl}$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-pyrrolyl}$ ;  
 $-(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-pyrazolyl}$ ;  $(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-benzoxazolyl}$ ;  
 $-(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-imidazolyl}$ ; each of the above  
heteroaryl groups is optionally substituted with 1,  
2, 3, or 4  $\text{R}_{200}$ ;  $-(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-imidazolidinyl}$ ;  
 $(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-tetrahydrofuryl}$ ;  $(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-}$   
 $\text{tetrahydropyranyl}$ ;  $(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-piperazinyl}$ ;  
 $(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-pyrrolidinyl}$ ;  $(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-piperidinyl}$ ;  
 $(\text{CR}_{245}\text{R}_{250})_{0-3}\text{-indolinyl}$ ; each of the above  
heterocycloalkyl groups is optionally substituted  
with 1, 2, 3, or 4  $\text{R}_{210}$ ;  $(\text{CH}_2)_{0-1}\text{-CH}((\text{CH}_2)_{0-4}\text{-OH})\text{-(CH}_2)_{0-1}\text{-}$   
 $\text{phenyl}$ ;  $-(\text{CH}_2)_{0-1}\text{-CH}(\text{C}_1\text{-C}_4 \text{ hydroxyalkyl})\text{-(CH}_2)_{0-1}\text{-}$   
 $\text{pyridyl}$ ;

$\text{R}_{200}$  at each occurrence is independently  $\text{C}_1\text{-C}_6$  alkyl  
optionally substituted with 1, 2, or 3  $\text{R}_{205}$   
groups; OH;  $-\text{NO}_2$ ; halogen;  $-\text{CO}_2\text{H}$ ;  $\text{C}\equiv\text{N}$ ;  $-(\text{CH}_2)_{0-4}\text{-}$   
 $\text{CO-NR}_{220}\text{R}_{225}$ ;  $-(\text{CH}_2)_{0-4}\text{-CO-(C}_1\text{-C}_8 \text{ alkyl})$ ;  $-(\text{CH}_2)_{0-4}\text{-}$   
 $\text{CO}_2\text{R}_{215}$ ; and  $-(\text{CH}_2)_{0-4}\text{-O-(C}_1\text{-C}_6 \text{ alkyl optionally}$   
 $\text{substituted with 1, 2, 3, or 5 -F})$ ;

$\text{R}_{205}$  at each occurrence is independently  $\text{C}_1\text{-C}_6$  alkyl,  
halogen,  $-\text{OH}$ ,  $-\text{O-phenyl}$ ,  $-\text{SH}$ ,  $-\text{C}\equiv\text{N}$ ,  $-\text{CF}_3$ ,  $\text{C}_1\text{-C}_6$   
alkoxy,  $\text{NH}_2$ ,  $\text{NH(C}_1\text{-C}_6 \text{ alkyl)}$ , and  $\text{N-(C}_1\text{-C}_6 \text{ alkyl)(C}_1\text{-C}_6 \text{ alkyl)}$ ;

$\text{R}_{210}$  at each occurrence is independently  $\text{C}_1\text{-C}_6$  alkyl  
optionally substituted with 1 or 2  $\text{R}_{205}$  groups;  
halogen;  $\text{C}_1\text{-C}_4$  alkoxy;  $\text{C}_1\text{-C}_4$  haloalkoxy;  
 $-\text{NR}_{220}\text{R}_{225}$ ; OH;  $\text{C}\equiv\text{N}$ ;  $\text{C}_3\text{-C}_7$  cycloalkyl optionally  
substituted with 1 or 2  $\text{R}_{205}$  groups;  $-\text{CO-(C}_1\text{-C}_4 \text{ alkyl)}$ ;  
 $-\text{SO}_2\text{-NR}_{235}\text{R}_{240}$ ;  $-\text{CO-NR}_{235}\text{R}_{240}$ ;  $-\text{SO}_2\text{-(C}_1\text{-C}_4 \text{ alkyl)}$ ;  
and  $=\text{O}$ ; wherein

$\text{R}_{215}$  at each occurrence is independently  $\text{C}_1\text{-C}_6$  alkyl,  
 $-(\text{CH}_2)_{0-2}\text{-(phenyl)}$ ,  $\text{C}_3\text{-C}_6$  cycloalkyl,  $-(\text{CH}_2)_{0-2}\text{-}$

(pyridyl),  $-(CH_2)_{0-2}$ -(pyrrolyl),  $-(CH_2)_{0-2}$ -(imidazolyl),  $-(CH_2)_{0-2}$ -(pyrimidyl),  $-(CH_2)_{0-2}$ -(pyrrolidinyl),  $-(CH_2)_{0-2}$ -(imidazolidinyl),  $-(CH_2)_{0-2}$ -(piperazinyl),  $-(CH_2)_{0-2}$ -(piperidinyl), and  $-(CH_2)_{0-2}$ -(morpholinyl); wherein the phenyl group at each occurrence is optionally substituted with 1 or 2 groups that are independently  $R_{205}$  or  $R_{210}$ ; wherein each heterocycloalkyl group at each occurrence is optionally substituted with 1 or 2  $R_{210}$ ; wherein each heteroaryl group at each occurrence is optionally substituted with 1 or 2  $R_{210}$ ;

$R_{220}$  and  $R_{225}$  at each occurrence are independently -H,  $-C_1-C_4$  alkyl, hydroxy  $C_1-C_4$  alkyl, halo  $C_1-C_4$  alkyl;  $-C_3-C_6$  cycloalkyl, and  $-(C_1-C_4 \text{ alkyl})-O-(C_1-C_2 \text{ alkyl})$ ;

$R_{235}$  and  $R_{240}$  at each occurrence are independently H, or  $C_1-C_6$  alkyl;

$R_{245}$  and  $R_{250}$  at each occurrence are independently H,  $C_1-C_4$  alkyl,  $C_1-C_4$  hydroxyalkyl,  $C_1-C_4$  alkoxy,  $C_1-C_4$  haloalkoxy, or

$R_{245}$  and  $R_{250}$  are taken together with the carbon to which they are attached to form a carbocycle of 3, 4, 5, or 6 carbon atoms.

Other preferred compounds of formula X-3 include compounds wherein

X is  $-C_1-C_3$  alkylidenyl optionally optionally substituted with 1 or 2 methyl groups;

Z is  $SO_2$ ; SO; S; or C(O);

Y is  $C_1-C_4$  haloalkyl; OH;  $-N(Y_1)(Y_2)$ ;  $C_1-C_{10}$  alkyl optionally substituted with 1 or 2 substituents which can be the same or different and are selected

from halogen, hydroxy, C<sub>1</sub>-C<sub>4</sub> alkoxy, C<sub>1</sub>-C<sub>4</sub> thioalkoxy, and C<sub>1</sub>-C<sub>4</sub> haloalkoxy; C<sub>1</sub>-C<sub>4</sub> alkoxy; phenyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; and benzyl optionally substituted with halogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, CN or NO<sub>2</sub>; wherein Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 substituents selected from halogen, C<sub>1</sub>-C<sub>2</sub> alkoxy, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, and OH; C<sub>2</sub>-C<sub>6</sub> alkanoyl; phenyl; -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub> alkyl; benzyl; and C<sub>3</sub>-C<sub>6</sub> cycloalkyl C<sub>1</sub>-C<sub>2</sub> alkyl; or -N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1, 2, 3, or 4 groups that are independently C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>6</sub> alkoxy C<sub>1</sub>-C<sub>6</sub> alkyl, or halogen.

Preferred compounds of formula X-3 also include those of formula X-4, i.e., compounds of formula X-3 wherein

X is -C<sub>1</sub>-C<sub>3</sub> alkylidenyl optionally optionally substituted with 1 methyl group;

Z is SO<sub>2</sub>; SO; S; or C(O);

Y is OH; -N(Y<sub>1</sub>)(Y<sub>2</sub>); phenyl; benzyl; or C<sub>1</sub>-C<sub>10</sub> alkyl optionally substituted with 1 or 2 substituents which can be the same or different and are selected from halogen, hydroxy, methoxy, ethoxy, thiomethoxy, thioethoxy, and CF<sub>3</sub>; wherein

Y<sub>1</sub> and Y<sub>2</sub> are the same or different and are H; C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 or 2 substituents selected from halogen, methoxy, ethoxy, cyclopropyl, and OH; or

-N(Y<sub>1</sub>)(Y<sub>2</sub>) forms a ring selected from piperazinyl, piperidinyl, morpholinyl, and pyrrolidinyl, wherein each ring is optionally substituted with 1 or 2 groups that are independently C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or halogen;

R<sub>1</sub> is benzyl which is optionally substituted with 1, 2, or 3 groups independently selected from methyl, ethyl, n-propyl, isopropyl, hydroxymethyl, monohalomethyl, dihalomethyl, trihalomethyl, -CH<sub>2</sub>CF<sub>3</sub>, methoxymethyl, halogen, methoxy, ethoxy, n-propyloxy, isopropyloxy, and OH;

R<sub>2</sub> and R<sub>3</sub> are independently H or C<sub>1</sub>-C<sub>4</sub> alkyl;

R<sub>C</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with 1, 2, or 3 R<sub>205</sub> groups; cyclopropyl, cyclopropylmethyl, cyclopentyl, cyclopentylmethyl, cyclohexyl, cyclohexylmethyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-phenyl optionally substituted with 1 or 2 R<sub>200</sub> groups; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyridyl optionally substituted with 1 or 2 R<sub>200</sub>; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-piperazinyl; or (CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-pyrrolidinyl; -(CR<sub>245</sub>R<sub>250</sub>)<sub>0-3</sub>-piperidinyl; each of the above heterocycloalkyl groups is optionally substituted with 1 or 2 R<sub>210</sub> groups;

R<sub>200</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 or 2 R<sub>205</sub> groups; OH; and halogen;

R<sub>205</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl, halogen, -OH, -SH, -C≡N, -CF<sub>3</sub>, and C<sub>1</sub>-C<sub>4</sub> alkoxy;

R<sub>210</sub> at each occurrence is independently selected from C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted with 1 or 2 R<sub>205</sub> groups; halogen; C<sub>1</sub>-C<sub>4</sub> alkoxy; OCF<sub>3</sub>; NH<sub>2</sub>, NH(C<sub>1</sub>-C<sub>6</sub> alkyl); N(C<sub>1</sub>-C<sub>6</sub> alkyl)(C<sub>1</sub>-C<sub>6</sub> alkyl); OH; and -CO-(C<sub>1</sub>-C<sub>4</sub> alkyl); wherein



R<sub>245</sub> and R<sub>250</sub> at each occurrence are independently selected from H, C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, or

R<sub>245</sub> and R<sub>250</sub> are taken together with the carbon to which they are attached to form a carbocycle of 3, 5, or 6 carbon atoms.

Preferred compounds of formulas X, X-1 and X-2 include compounds of formula X-5, i.e., those of formulae X, X-1 or X-2 wherein

R<sub>N</sub> is -C(=O)-(CRR')<sub>0-6</sub>R<sub>100</sub>; and

R<sub>100</sub> represents aryl, heteroaryl, or heterocyclyl, where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

-OR, -NO<sub>2</sub>, C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -C≡N, -OCF<sub>3</sub>, -CF<sub>3</sub>, -  
(CH<sub>2</sub>)<sub>0-4</sub>-O-P(=O)(OR)(OR'), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-O-(CH<sub>2</sub>)<sub>0-4</sub>-CONR<sub>102</sub>R<sub>102</sub>', - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>1</sub>-C<sub>12</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkenyl), - (CH<sub>2</sub>)<sub>0-4</sub>-  
CO-(C<sub>2</sub>-C<sub>12</sub> alkynyl), - (CH<sub>2</sub>)<sub>0-4</sub>-CO-(CH<sub>2</sub>)<sub>0-4</sub>(C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>110</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>120</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>130</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-SO-(C<sub>1</sub>-C<sub>8</sub>  
alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>12</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-  
(CH<sub>2</sub>)<sub>0-4</sub>-(C<sub>3</sub>-C<sub>7</sub> cycloalkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-O-  
R<sub>150</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
N(R<sub>150</sub>)-CS-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-R<sub>105</sub>,  
- (CH<sub>2</sub>)<sub>0-4</sub>-NR<sub>105</sub>R'<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-R<sub>140</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-CO-  
(C<sub>1</sub>-C<sub>6</sub> alkyl), - (CH<sub>2</sub>)<sub>0-4</sub>-O-P(O)-(O-R<sub>110</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
O-CO-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-O-CS-N(R<sub>150</sub>)<sub>2</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-  
O-(R<sub>150</sub>), - (CH<sub>2</sub>)<sub>0-4</sub>-O-R<sub>150</sub>'-COOH, - (CH<sub>2</sub>)<sub>0-4</sub>-S-(R<sub>150</sub>),  
- (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, - (CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub>  
cycloalkyl, (C<sub>2</sub>-C<sub>10</sub>)alkenyl, or (C<sub>2</sub>-C<sub>10</sub>)alkynyl.

Preferred compounds of formula X-5 include compounds wherein

$R_N$  is  $-C(=O)-R_{100}$ ; and

$R_{100}$  represents aryl, or heteroaryl, where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

$-OR$ ,  $-NO_2$ ,  $C_1-C_6$  alkyl, halogen,  $-C\equiv N$ ,  $-OCF_3$ ,  $-CF_3$ ,  $-(CH_2)_{0-4}-O-P(=O)(OR)(OR')$ ,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-O-(CH_2)_{0-4}-CONR_{102}R'_{102}$ ,  $-(CH_2)_{0-4}-CO-(C_1-C_{12}$  alkyl),  $-(CH_2)_{0-4}-CO-(C_2-C_{12}$  alkenyl),  $-(CH_2)_{0-4}-CO-(C_2-C_{12}$  alkynyl),  $-(CH_2)_{0-4}-CO-(CH_2)_{0-4}(C_3-C_7$  cycloalkyl),  $-(CH_2)_{0-4}-R_{110}$ ,  $-(CH_2)_{0-4}-R_{120}$ ,  $-(CH_2)_{0-4}-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{110}$ ,  $-(CH_2)_{0-4}-CO-R_{120}$ ,  $-(CH_2)_{0-4}-CO-R_{130}$ ,  $-(CH_2)_{0-4}-CO-R_{140}$ ,  $-(CH_2)_{0-4}-CO-O-R_{150}$ ,  $-(CH_2)_{0-4}-SO_2-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-SO-(C_1-C_8$  alkyl),  $-(CH_2)_{0-4}-SO_2-(C_1-C_{12}$  alkyl),  $-(CH_2)_{0-4}-SO_2-(CH_2)_{0-4}-(C_3-C_7$  cycloalkyl),  $-(CH_2)_{0-4}-N(R_{150})-CO-O-R_{150}$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-N(R_{150})-CO-R_{105}$ ,  $-(CH_2)_{0-4}-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-R_{140}$ ,  $-(CH_2)_{0-4}-O-CO-(C_1-C_6$  alkyl),  $-(CH_2)_{0-4}-O-P(O)-(O-R_{110})_2$ ,  $-(CH_2)_{0-4}-O-CO-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-O-CS-N(R_{150})_2$ ,  $-(CH_2)_{0-4}-O-(R_{150})$ ,  $-(CH_2)_{0-4}-O-R_{150}'-COOH$ ,  $-(CH_2)_{0-4}-S-(R_{150})$ ,  $-(CH_2)_{0-4}-N(R_{150})-SO_2-R_{105}$ ,  $-(CH_2)_{0-4}-C_3-C_7$  cycloalkyl,  $(C_2-C_{10})$  alkenyl, or  $(C_2-C_{10})$  alkynyl.

Preferred compounds of formula X-5 also include compounds wherein

$R_N$  is  $-C(=O)$ -aryl or  $-C(=O)$ -heteroaryl where the ring portions of each are optionally substituted with 1, 2, or 3 groups independently selected from

$-OR$ ,  $-NO_2$ ,  $C_1-C_6$  alkyl, halogen,  $-C\equiv N$ ,  $-OCF_3$ ,  $-CF_3$ ,  $-(CH_2)_{0-4}-CO-NR_{105}R'_{105}$ ,  $-(CH_2)_{0-4}-O-(CH_2)_{0-4}-CONR_{102}R'_{102}$ ,  $-(CH_2)_{0-4}-CO-(C_1-C_{12}$  alkyl),  $-(CH_2)_{0-4}-$

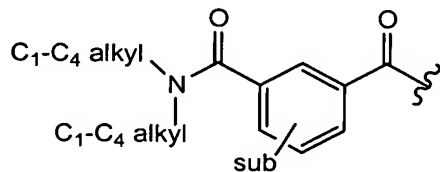
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CO-(C<sub>2</sub>-C<sub>12</sub> alkenyl), -(CH<sub>2</sub>)<sub>0-4</sub>-CO-(C<sub>2</sub>-C<sub>12</sub> alkynyl),  
 -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>,  
 -(CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>110</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-  
 R<sub>130</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-R<sub>140</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-O-R<sub>150</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
 SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-SO-(C<sub>1</sub>-C<sub>8</sub> alkyl),  
 -(CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>12</sub> alkyl), -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-O-  
 R<sub>150</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-CO-N(R<sub>150</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
 N(R<sub>150</sub>)-CO-R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>140</sub>,  
 -(CH<sub>2</sub>)<sub>0-4</sub>-O-CO-(C<sub>1</sub>-C<sub>6</sub> alkyl), -(CH<sub>2</sub>)<sub>0-4</sub>-O-CO-  
 N(R<sub>150</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-O-(R<sub>150</sub>), -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-  
 R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-C<sub>3</sub>-C<sub>7</sub> cycloalkyl, (C<sub>2</sub>-  
 C<sub>10</sub>)alkenyl, or (C<sub>2</sub>-C<sub>10</sub>)alkynyl.

Other preferred compounds of formula X-5 include  
 compounds wherein

R<sub>N</sub> is -C(=O)-aryl or -C(=O)-heteroaryl where the ring  
 portions of each are optionally substituted with 1  
 or 2 groups independently selected from  
 C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -(CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
 O-CO-N(R<sub>150</sub>)<sub>2</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-  
 SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>, C<sub>3</sub>-C<sub>7</sub> cycloalkyl, (C<sub>2</sub>-C<sub>10</sub>)alkenyl,  
 -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, or  
 (C<sub>2</sub>-C<sub>10</sub>)alkynyl.

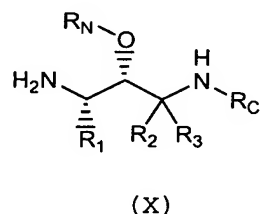
Other preferred compounds of formula X-5 also  
 include compounds wherein R<sub>N</sub> is:



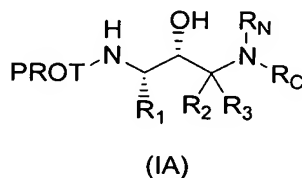
wherein sub is hydrogen or is C<sub>1</sub>-C<sub>6</sub> alkyl, halogen, -  
 (CH<sub>2</sub>)<sub>0-4</sub>-CO-NR<sub>105</sub>R'<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-O-CO-N(R<sub>150</sub>)<sub>2</sub>, -  
 (CH<sub>2</sub>)<sub>0-4</sub>-N(R<sub>150</sub>)-SO<sub>2</sub>-R<sub>105</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-SO<sub>2</sub>-NR<sub>105</sub>R'<sub>105</sub>,

C<sub>3</sub>-C<sub>7</sub> cycloalkyl, -(C<sub>2</sub>-C<sub>10</sub>)alkenyl, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>110</sub>,  
-(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>120</sub>, -(CH<sub>2</sub>)<sub>0-4</sub>-R<sub>130</sub>, or (C<sub>2</sub>-C<sub>10</sub>)alkynyl.

A preferred stereochemistry for compounds of formula  
X is as follows:

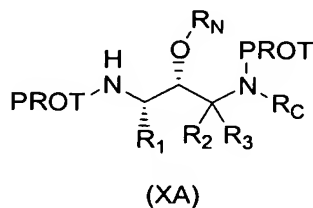


In another aspect, the invention provides  
intermediates of the formula (IA):



wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>N</sub>, and R<sub>C</sub> are as defined above for  
compounds of formula I, and PROT is an amine protecting  
group as defined below.

In another aspect, the invention provides  
intermediates of the formula (XA):



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wherein  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_N$ , and  $R_C$  are as defined above for compounds of formula I, and PROT is an amine protecting group as defined below

The invention also provides methods of generating compounds of formula (Y) from the compounds of formula (AA), formula (I) or formula (X), which are useful for treating and/or preventing Alzheimer's disease. The generation of compounds of formula (Y) from compounds of formulae (AA), (I) or (X) can occur *in vivo* or *in vitro*.

The invention also provides processes for converting compounds of formula AA, I or X to the compounds of formula Y by exposing compounds of formula AA, I or X to aqueous media. The conversion can occur *in vitro* or *in vivo*.

The invention also provides methods for treating a patient who has, or in preventing a patient from getting, a disease or condition selected from the group consisting of Alzheimer's disease, for helping prevent or delay the onset of Alzheimer's disease, for treating patients with mild cognitive impairment (MCI) and preventing or delaying the onset of Alzheimer's disease in those who would progress from MCI to AD, for treating Down's syndrome, for treating humans who have Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, for treating cerebral amyloid angiopathy and preventing its potential consequences, i.e. single and recurrent lobar hemorrhages, for treating other degenerative dementias, including dementias of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, or diffuse Lewy body type of Alzheimer's disease and who is in need of such treatment

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which includes administration of a therapeutically effective amount of a compound of formula (AA), (I) or (X) or a pharmaceutically acceptable salts thereof.

In an embodiment, this method of treatment can be used where the disease is Alzheimer's disease.

In an embodiment, this method of treatment can help prevent or delay the onset of Alzheimer's disease.

In an embodiment, this method of treatment can be used where the disease is mild cognitive impairment.

In an embodiment, this method of treatment can be used where the disease is Down's syndrome.

In an embodiment, this method of treatment can be used where the disease is Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type.

In an embodiment, this method of treatment can be used where the disease is cerebral amyloid angiopathy.

In an embodiment, this method of treatment can be used where the disease is degenerative dementias.

In an embodiment, this method of treatment can be used where the disease is diffuse Lewy body type of Alzheimer's disease.

In an embodiment, this method of treatment can treat an existing disease.

In an embodiment, this method of treatment can prevent a disease from developing.

In an embodiment, this method of treatment can employ therapeutically effective amounts: for oral administration from about 0.1 mg/day to about 1,000 mg/day; for parenteral, sublingual, intranasal, intrathecal administration from about 0.5 to about 100 mg/day; for depo administration and implants from about 0.5 mg/day to about 50 mg/day; for topical administration

from about 0.5 mg/day to about 200 mg/day; for rectal administration from about 0.5 mg to about 500 mg.

In an embodiment, this method of treatment can employ therapeutically effective amounts: for oral administration from about 1 mg/day to about 100 mg/day; and for parenteral administration from about 5 to about 50 mg daily.

In an embodiment, this method of treatment can employ therapeutically effective amounts for oral administration from about 5 mg/day to about 50 mg/day.

The invention also includes pharmaceutical compositions which include a compound of formula (AA), (I) or (X) or a pharmaceutically acceptable salts thereof.

The invention also includes the use of a compound of formula (AA), (I) or (X) or pharmaceutically acceptable salts thereof for the manufacture of a medicament.

The invention also includes methods for inhibiting beta-secretase activity, for inhibiting cleavage of amyloid precursor protein (APP), in a reaction mixture, at a site between Met596 and Asp597, numbered for the APP-695 amino acid isotype, or at a corresponding site of an isotype or mutant thereof; for inhibiting production of amyloid beta peptide (A beta) in a cell; for inhibiting the production of beta-amyloid plaque in an animal; and for treating or preventing a disease characterized by beta-amyloid deposits in the brain. These methods each include administration of a therapeutically effective amount of a compound of formula (AA), (I) or (X) or a pharmaceutically acceptable salts thereof.

The invention also includes a method for inhibiting beta-secretase activity, including exposing said beta-

secretase to a compound of formula (AA), (I) or (X), under conditions whereby an effective inhibitory amount of a compound of formula (Y), or a pharmaceutically acceptable salt thereof, is formed.

In an embodiment, this method employs a compound that inhibits 50% of the enzyme's activity at a concentration of less than 50 micromolar.

In an embodiment, this method employs a compound that inhibits 50% of the enzyme's activity at a concentration of 10 micromolar or less.

In an embodiment, this method employs a compound that inhibits 50% of the enzyme's activity at a concentration of 1 micromolar or less.

In an embodiment, this method employs a compound that inhibits 50% of the enzyme's activity at a concentration of 10 nanomolar or less.

In an embodiment, this method includes exposing said beta-secretase to said compound *in vitro*.

In an embodiment, this method includes exposing said beta-secretase to said compound in a cell.

In an embodiment, this method includes exposing said beta-secretase to said compound in a cell in an animal.

In an embodiment, this method includes exposing said beta-secretase to said compound in a human.

The invention also includes a method for inhibiting cleavage of amyloid precursor protein (APP), in a reaction mixture, at a site between Met596 and Asp597, numbered for the APP-695 amino acid isotype; or at a corresponding site of an isotype or mutant thereof, including exposing said reaction mixture to an effective inhibitory amount of a compound of formula (AA), (I) or (X), or a pharmaceutically acceptable salt thereof.



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In an embodiment, this method employs a cleavage site: between Met652 and Asp653, numbered for the APP-751 isotype; between Met 671 and Asp 672, numbered for the APP-770 isotype; between Leu596 and Asp597 of the APP-695 Swedish Mutation; between Leu652 and Asp653 of the APP-751 Swedish Mutation; or between Leu671 and Asp672 of the APP-770 Swedish Mutation.

In an embodiment, this method exposes said reaction mixture *in vitro*.

In an embodiment, this method exposes said reaction mixture in a cell.

In an embodiment, this method exposes said reaction mixture in an animal cell.

In an embodiment, this method exposes said reaction mixture in a human cell.

The invention also includes a method for inhibiting production of amyloid beta peptide (A beta) in a cell, including administering to said cell a compound of formula (AA), (I) or (X), under conditions whereby an effective inhibitory amount of a compound of formula (Y), or a pharmaceutically acceptable salt thereof, is formed.

In an embodiment, this method includes administering to an animal.

In an embodiment, this method includes administering to a human.

The invention also includes a method for inhibiting the production of beta-amyloid plaque in an animal, including administering to said animal a compound of formula (AA), (I) or (X), under conditions whereby an effective inhibitory amount of a compound of formula (Y), or a pharmaceutically acceptable salt thereof, is formed.

In an embodiment, this method includes administering to a human.

The invention also includes a method for treating or preventing a disease characterized by beta-amyloid deposits in the brain including administering to a patient an effective therapeutic amount of a compound of formula (AA), (I) or (X), under conditions whereby an effective inhibitory amount of a compound of formula (Y), or a pharmaceutically acceptable salt thereof, is formed.

In an embodiment, this method results in a compound of formula (Y) that inhibits 50% of the enzyme's activity at a concentration of less than 50 micromolar.

In an embodiment, this method results in a compound of formula (Y) that inhibits 50% of the enzyme's activity at a concentration of 10 micromolar or less.

In an embodiment, this method results in a compound of formula (Y) that inhibits 50% of the enzyme's activity at a concentration of 1 micromolar or less.

In an embodiment, this method results in a compound of formula (Y) that inhibits 50% of the enzyme's activity at a concentration of 10 nanomolar or less.

In an embodiment, this method employs a compound at a therapeutic amount in the range of from about 0.1 to about 1500 mg/day.

In an embodiment, this method employs a compound at a therapeutic amount in the range of from about 15 to about 1000 mg/day.

In an embodiment, this method employs a compound at a therapeutic amount in the range of from about 1 to about 100 mg/day.

In an embodiment, this method employs a compound at a therapeutic amount in the range of from about 5 to about 50 mg/day.

In an embodiment, this method can be used where said disease is Alzheimer's disease.

In an embodiment, this method can be used where said disease is Mild Cognitive Impairment, Down's Syndrome, or Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch Type.

The invention also includes a component kit including component parts capable of being assembled, in which at least one component part includes a compound of formula AA, I or X enclosed in a container.

In an embodiment, this component kit includes lyophilized compound, and at least one further component part includes a diluent.

The invention also includes a container kit including a plurality of containers, each container including one or more unit dose of a compound of formula (AA), (I) or (X):, or a pharmaceutically acceptable salt thereof.

In an embodiment, this container kit includes each container adapted for oral delivery and includes a tablet, gel, or capsule.

In an embodiment, this container kit includes each container adapted for parenteral delivery and includes a depot product, syringe, ampoule, or vial.

In an embodiment, this container kit includes each container adapted for topical delivery and includes a patch, medipad, ointment, or cream.

The invention also includes an agent kit including a compound of formula (AA), (I) or (X), or a pharmaceutically acceptable salt thereof; and one or more therapeutic agent selected from the group consisting of an antioxidant, an anti-inflammatory, a gamma secretase inhibitor, a neurotrophic agent, an acetyl cholinesterase inhibitor, a statin, an A beta peptide, and an anti-A beta antibody.

The invention also includes a composition including a compound of formula (AA), (I) or (X), or a pharmaceutically acceptable salt thereof; and an inert diluent or edible carrier.

In an embodiment, this composition includes a carrier that is an oil.

The invention also includes a composition including: a compound of formula (AA), (I) or (X), or a pharmaceutically acceptable salt thereof; and a binder, excipient, disintegrating agent, lubricant, or gildant.

The invention also includes a composition including a compound of formula (AA), (I) or (X), or a pharmaceutically acceptable salt thereof; disposed in a cream, ointment, or patch.

The invention provides compounds of formula (AA), formula (I) and (X) that can be used to generate compounds of formula (Y), that are useful in treating and preventing Alzheimer's disease. The compounds of the invention can be prepared by one skilled in the art based only on knowledge of the compound's chemical structure. The chemistry for the preparation of the compounds of this invention is known to those skilled in the art. In fact, there is more than one process to prepare the compounds of the invention. Specific examples of methods of preparation can be found in the art. For examples, see *J. Org. Chem.* **1998**, *63*, 4898-4906; *J. Org. Chem.* **1997**, *62*, 9348-9353; *J. Org. Chem.* **1996**, *61*, 5528-5531; *J. Med. Chem.* **1993**, *36*, 320-330; *J. Am. Chem. Soc.* **1999**, *121*, 1145-1155; and references cited therein. See also U.S. Patent Nos. 6,150,530, 5,892,052, 5,696,270, and

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5,362,912, which are incorporated herein by reference, and references cited therein.

Examples of various processes that can be used to prepare the compounds of the invention are set forth below.

A general process to prepare the compounds of formula I and X is set forth in SCHEME A. The chemistry is straight forward and in summary involves the steps of N-protecting the amino acid (A) starting material to produce the corresponding protected amino acid (II), reaction of the protected amino acid (II) with diazomethane followed by work-up to add a carbon atom to produce the corresponding protected compound (III), reduction of the protected halide to the corresponding alcohol (IV), formation of the corresponding epoxide (V), opening of the epoxide (V) with a C-terminal amine,  $R_C-NH_2$  (VI) to produce the corresponding protected alcohol (VII).

Compounds of formula (I) can be prepared by reacting protected alcohol (VII) with an amide forming agent such as, for example,  $(R_N)_2O$  or  $R_N-X$  or  $R_N-OH$  (IX) to produce alcohol (IA). Alcohol (IA) then has the nitrogen protecting group removed to produce the corresponding compounds of formula (I).

Compounds of formula (X) can be prepared by further N-protecting alcohol (VII) to form the diprotected alcohol (XB). Diprotected alcohol (XB) is reacted with an amide forming agent such as, for example,  $(R_N)_2O$  or  $R_N-X$  or  $R_N-OH$  (IX) to produce compound (XA). Compound (XA) then has the nitrogen protecting groups removed to produce the corresponding compounds of formula (X).

One skilled in the art will appreciate that these are all known reactions in organic chemistry. A chemist

skilled in the art, knowing the chemical structure of the compounds (AA), (I) and (X) of the invention would be able to prepare them by known methods from known starting materials without any additional information. The explanation below therefore is not necessary but is deemed helpful to those skilled in the art who desire to make the compounds of the invention.

The backbone of the intermediate (VII), from which the compounds of formula (AA), (I) and (X) can be readily prepared, can be considered a hydroxyethylamine moiety, -NH-CH(R)-CH(OH)-. Such backbones can be prepared by methods disclosed in the literature and known to those skilled in the art. For example, *J. Med. Chem.*, 36, 288-291 (1993), *Tetrahedron Letters*, 28, 5569-5572 (1987), *J. Med. Chem.*, 38, 581-584 (1995) and *Tetrahedron Letters*, 38, 619-620 (1997) and WO 02/02506 all disclose processes to prepare hydroxyethylamine type compounds and/or their intermediates.

SCHEME A sets forth a general method used in the invention to prepare the appropriately substituted amines I and X. The compounds of the invention are prepared by starting with the corresponding amino acid (A). The amino acids (A) are known to those skilled in the art or can be readily prepared by methods known to those skilled in the art. The compounds of the invention have at least two chiral centers, which give 2 sets of diastereomers, each of which is racemic for a total of at least four stereoisomers. While biologically active end products result from all stereoisomers, the (S,R) configuration is preferred. The first of these chiral centers (the carbon carrying R<sub>1</sub>) derives from the amino acid starting material (A). It is preferred to commercially obtain or produce the desired enantiomer

rather than produce an enantiomerically impure mixture and then have to separate out the desired enantiomer. Thus it is preferred to start the process with enantiomerically pure (S)-amino acid (A) of the same configuration as that of the desired X product.

In Scheme A, the protection of free amine (A) to produce the (S)-protected amino acid (II) is depicted. Amino protecting groups are known to those skilled in the art, as discussed below. See for example, "Protecting Groups in Organic Synthesis", John Wiley and sons, New York, N.Y., 1981, Chapter 7; "Protecting Groups in Organic Chemistry", Plenum Press, New York, N.Y., 1973, Chapter 2. The function of the amino protecting group is to protect the free amino functionality ( $-NH_2$ ) during subsequent reactions on the (S)-amino acid (A) which would not proceed either because the amino group would react and be functionalized in a way that is inconsistent with its need to be free for subsequent reactions or the free amino group would interfere in the reaction. When the amino protecting group is no longer needed, it is removed by methods known to those skilled in the art. By definition the amino protecting group must be readily removable as is known to those skilled in the art by methods known to those skilled in the art. Suitable amino PROTECTING GROUPS are discussed below.

The (S)-protected amino acid (II) is transformed to the corresponding (S)-protected compound (III) by two different methods depending on nature of  $R_2$  and  $R_3$ .

$R_2$  and  $R_3$  can be the same or different. It is preferred that  $R_2$  and  $R_3$  both be  $-H$ . If  $R_2$  and  $R_3$  are not the same, an additional chiral or stereogenic center is added to the molecule. To produce compounds of formula (III) where  $R_2$  and  $R_3$  are both  $-H$ , the (S)-protected amino

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acid (II) is reacted with diazomethane, as is known to those skilled in the art, followed by reaction with a compound of the formula  $H-X_1$  to produce the (S)-protected compound (III).  $X_1$  includes -Cl, -Br, -I, -O-tosylate, -O-mesylate, -O-nosylate and -O-brosylate. It is preferred that  $-X_1$  be -Br or -Cl. Suitable reaction conditions include running the reaction in inert solvents, such as but not limited to ether, tetrahydrofuran and the like. The reactions from the (S)-protected amino acid (II) to the (S)-protected compound (III) are carried out for a period of time between 10 minutes and 1 day and at temperatures ranging from about  $-78^{\circ}$  to about  $20-25^{\circ}$ . It is preferred to conduct the reactions for a period of time between 1-4 hours and at temperatures between  $-30^{\circ}$  to  $-10^{\circ}$ . This process adds one methylene group.

Alternatively, the (S)-protected compounds of formula (III) can be prepared by first converting the (S)-protected amino acid (II) to a corresponding methyl or ethyl ester, according to methods established in the art, followed by treatment with a reagent of formula  $X_1-C(R_2)(R_3)-X_1$  and a strong metal base. The base serves to affect a halogen-metal exchange, where the  $-X_1$  undergoing exchange is a halogen selected from chlorine, bromine or iodine. The nucleophilic addition to the ester derivative gives directly the (S)-protected compound (III). Suitable bases include, but are not limited to the alkylolithiums including, for example, *sec*-butyllithium, *n*-butyllithium, and *t*-butyllithium. The reactions are preferably conducted at low temperature, such as  $-78^{\circ}$ . Suitable reaction conditions include running the reaction in inert solvents, such as but not limited to, ether, tetrahydrofuran and the like. Where  $R_2$



and  $R_3$  are both hydrogen, then examples of  $X_1-C(R_2)(R_3)-X_1$  include dibromomethane, diiodomethane, chloriodomethane, bromiodomethane and bromochloromethane. One skilled in the art knows the preferred conditions required to conduct this reaction. Furthermore, if  $R_2$  and/or  $R_3$  are not  $-H$ , then by the addition of  $-C(R_2)(R_3)-X_1$  to esters of the (S)-protected amino acid (II) to produce the (S)-protected compound (III), an additional chiral center will be incorporated into the product, provided that  $R_2$  and  $R_3$  are not the same.

The (S)-protected compound (III) is then reduced by means known to those skilled in the art for reduction of a ketone to the corresponding secondary alcohol affording the corresponding alcohol (IV). The means and reaction conditions for reducing the (S)-protected compound (III) to the corresponding alcohol (IV) include, for example, sodium borohydride, lithium borohydride, borane, diisobutylaluminum hydride, and lithium aluminium hydride. Sodium borohydride is the preferred reducing agent. The reductions are carried out for a period of time between 1 hour and 3 days at temperatures ranging from  $-78^\circ$  to elevated temperature up to the reflux point of the solvent employed. It is preferred to conduct the reduction between  $-78^\circ$  and  $0^\circ$ . If borane is used, it may be employed as a complex, for example, borane-methyl sulfide complex, borane-piperidine complex, or borane-tetrahydrofuran complex. The preferred combination of reducing agents and reaction conditions needed are known to those skilled in the art, see for example, Larock, R.C. in Comprehensive Organic Transformations, VCH Publishers, 1989. The reduction of the (S)-protected compound (III) to the corresponding alcohol (IV) produces the second chiral center (third chiral center if  $R_2$  and  $R_3$

are not the same). The reduction of the (S)-protected compound (III) produces a mixture of enantiomers at the second center, (S, R/S)-alcohol (IV). This enantiomeric mixture is then separated by means known to those skilled in the art such as selective low-temperature recrystallization or chromatographic separation, for example by HPLC, employing commercially available chiral columns. The enantiomer that is used in the remainder of the process of SCHEME A is the (S,S)-alcohol (IV) since this enantiomer will give the desired (S,R)-substituted compound I or X.

The (S, S)-alcohol (IV) is transformed to the corresponding epoxide (V) by means known to those skilled in the art. The stereochemistry of the (S)-(IV) center is maintained in forming the epoxide (V). A preferred means is by reaction with base, for example, but not limited to, hydroxide ion generated from sodium hydroxide, potassium hydroxide, lithium hydroxide and the like. Reaction conditions include the use of C<sub>1</sub>-C<sub>6</sub> alcohol solvents; ethanol is preferred. A common co-solvent, such as for example, ethyl acetate may also be employed. Reactions are conducted at temperatures ranging from -45° up to the reflux temperature of the alcohol employed; preferred temperature ranges are between -20° and 40°.

An alternative, and preferable process for preparing the epoxide (V) when R<sub>1</sub> is 3,5-difluorobenzyl, is set forth in SCHEME D. The first step of the process is to protect the free amino group of the (S)-amino acid (A) with an amino protecting group, PROTECTING GROUP, as previously discussed to produce the (S)-protected amino acid (II).

In the alternative process, the (S)-protected amino acid (A) is transformed to the corresponding (S)-protected ester (XVII) in one of a number of ways. One method involves the use of lithium hydroxide. Using lithium hydroxide, the (S)-protected amino acid (A) and the lithium hydroxide are mixed and cooled to from about -20° to about 10°. Next a methylating agent, selected from the group consisting of dimethylsulfate, methyl iodide and methyl triflate, is added. It is more preferred that the methylating agent is dimethylsulfate. This is followed by heating to from about 20° to about 50°.

Alternatively, the (S)-protected amino acid (A) is contacted with a weak base such as bicarbonate or preferably carbonate. This is followed by addition of the methylating agent. Heat is not necessary but can be used to facilitate the reaction. The carbonate method is known to those skilled in the art. For those (S)-protected esters (XVII) where  $Z_1$  is not methyl, one skilled in the art knowing the chemical structure would know how to prepare the desired compounds from known starting materials. In one known method the (S)-protected amino acid (A) is contacted with an activating agent, such as DCC, followed by addition of the appropriate alcohol,  $Z_1$ -OH. This method is operable when  $Z_1$  is  $C_1$ - $C_4$  alkyl (optionally substituted),  $-CH_2-CH=CH_2$  or phenyl (optionally substituted).

SCHEME E sets forth an alternative process for the preparation of the ester (II). In the process of SCHEME E, the aldehyde (XX), which is known to those skilled in the art, is reacted with the phosphorous compound (XXI), where  $X_3$  is a good leaving group, to produce the olefin (XXII). The phosphorous compounds (XXI) are known to

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those skilled in the art. It is preferred that  $X_3$  is  $C_1$ - $C_3$  alkyl; it is more preferred that  $X_3$  is  $C_1$  alkyl. The aldehyde (XX) and the phosphate (XXI) are combined in an organic solvent then cooled to about  $0^\circ$ . A base such as DBU or TMG is added and the contents of the reaction mixture are warmed to about  $20$ - $25^\circ$  and stirred until the reaction is complete. Once the reaction is complete, it is preferred to separate the E- and Z-olefin isomers (XXII). The separation is done by methods known to those skilled in the art, such as by silica gel chromatography. Next the olefin (XXII) is hydrogenated with a suitable hydrogenation catalyst to obtain the desired ester (II). Some hydrogenation reactions will give racemic ester (II). The desired stereochemistry of the ester (II) is (S)-, and therefore it is preferable to use the Z-olefin (XXII) with a hydrogenation catalyst. It is preferred that the hydrogenation catalyst is a compound of the formula  $[Rh(\text{diene})L]^+X^-$

where Rh is rhodium;

where diene is cyclooctadiene and nonbornadiene;

where L is DIPMAP, MeDuPhos, EtDuPhos, Binaphane, f-Binaphane, Me-KetalPhos, Me-f-KetalPhos, BINAP, DIOP, BPPFA, BPPM, CHIRAPHOS, PROPHOS, NORPHOS, CYCLOPHOS, BDPP, DEGPPOS, PNNP and where  $X^-$  is  $ClO_4^-$ ,  $BF_4^-$ ,  $CF_3-SO_3^-$ ,  $Cl^-$ ,  $Br^-$ ,  $PF_6^-$  and  $SbF_6^-$ . It is preferred that the hydrogenation catalyst be either DIPMAP or EtDuPhos. Suitable solvents include polar solvents such as alcohols, preferably  $C_1$ - $C_5$  alcohols and THF, more preferably methanol, ethanol, isopropanol and THF. The chiral hydrogenation is performed in a temperature range of from about  $-20^\circ$  to about reflux. It is preferred that the reaction be performed in the temperature range from about  $0^\circ$  to about room temperature ( $25^\circ$ ). The chiral

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hydrogenation is performed under a pressure of from about one atmosphere to about 100 psig; it is more preferred that the chiral hydrogenation be performed under a pressure of from about 10 psig to about 40 psig.

The (S)-protected ester (II) is then transformed to the corresponding (S)-protected ketone (III) by reaction with a slight excess of a compound of the formula  $\text{CH}_2\text{ClX}^2$  where  $\text{X}^2$  is -Br and -I in one of two different ways. In one process, no exogenous nucleophile is used. That process requires (1) the presence of three or more equivalents of strong base which has a  $\text{pK}_b$  of greater than about 30 followed by (2) adding acid. The other process requires (1) the presence of about 2 to about 2.5 equivalents of strong base which has a  $\text{pK}_b$  of greater than about 30, (2) contacting the mixture of step (1) with about 1 to about 1.5 equivalents of an exogenous nucleophile and (3) adding acid. Suitable strong bases are those which has a  $\text{pK}_b$  of greater than about 30. It is preferred that the strong base be selected from the group consisting of LDA, LiHMDS and KHMDS; it is more preferred that the strong base be LDA. Suitable acids are those, which have a  $\text{pK}_a$  of less than about 10. It is preferred the acid be selected from the group consisting of acetic, sulfuric, hydrochloric, citric, phosphoric and benzoic acids; it is more preferred that the acid be acetic acid. The preferred solvent for the process is THF. The reaction can be performed in the temperature range from about  $-80^\circ$  to about  $-50^\circ$ ; it is preferred to perform the reaction in the temperature range of from about  $-75^\circ$  to about  $-65^\circ$ . Suitable nucleophiles include alkyl lithium, aryl lithium, alkyl-Grignard and aryl-Grignard reagents. It is preferred that the nucleophile be selected from the group consisting of phenyl lithium, n-butyl lithium,

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methyl magnesium bromide, methyl magnesium chloride, phenyl magnesium bromide, phenyl magnesium chloride; it is more preferred that the nucleophile be n-butyl lithium.

The (S)-protected ketone (III) is then reduced to the corresponding (S)-alcohol (IV) by means known to those skilled in the art for reduction of a ketone to the corresponding secondary alcohol. The means and reaction conditions for reducing the (S)-protected compound (III) to the corresponding alcohol (IV) include, for example, sodium borohydride, lithium borohydride, borane, diisobutylaluminum hydride, zinc borohydride and lithium aluminium hydride. Sodium borohydride is the preferred reducing agent. The reductions are carried out for a period of time between about 1 hour and about 3 days at temperatures ranging from about  $-78^{\circ}$  to elevated temperature up to the reflux point of the solvent employed. It is preferred to conduct the reduction between about  $-78^{\circ}$  and about  $0^{\circ}$ . If borane is used, it may be employed as a complex, for example, borane-methyl sulfide complex, borane-piperidine complex, or borane-tetrahydrofuran complex. The preferred combination of reducing agents and reaction conditions needed are known to those skilled in the art, see for example, Larock, R.C. in Comprehensive Organic Transformations, VCH Publishers, 1989. The reduction of the (S)-protected compound (III) to the corresponding alcohol (IV) produces a second chiral center. The reduction of the (S)-protected compound (III) produces a mixture of diastereomers at the second center, (S, R/S)-alcohol (IV). This diastereomeric mixture is then separated by means known to those skilled in the art such as selective low-temperature recrystallization or chromatographic

separation, most preferably by recrystallization or by employing commercially available chiral columns. The diastereomer that is used in the remainder of the process of SCHEME A is the (S,S)-alcohol (IV) since this stereochemistry will give the desired epoxide (V).

The alcohol (IV) is transformed to the corresponding epoxide (V) by means known to those skilled in the art. The stereochemistry of the (S)-(IV) center is maintained in forming the epoxide (V). A preferred means is by reaction with base, for example, but not limited to, hydroxide ion generated from sodium hydroxide, potassium hydroxide, lithium hydroxide and the like. Reaction conditions include the use of C<sub>1</sub>-C<sub>6</sub> alcohol solvents; ethanol is preferred. A common co-solvent, such as for example, ethyl acetate may also be employed. Reactions are conducted at temperatures ranging from about -45° up to the reflux temperature of the alcohol employed; preferred temperature ranges are between about -20° and about 40°.

The epoxide (V) is then reacted with the appropriately substituted C-terminal amine, R<sub>C</sub>-NH<sub>2</sub> (VI) by means known to those skilled in the art which opens the epoxide to produce the desired corresponding enantiomerically pure (S,R)-protected alcohol (VII). The substituted C-terminal amines, R<sub>C</sub>-NH<sub>2</sub> (VI) of this invention are commercially available or are known to those skilled in the art and can be readily prepared from known compounds. It is preferred that when R<sub>C</sub> is phenyl, it is substituted in the 3-position or 3,5-positions.

Suitable reaction conditions for opening the epoxide (V) include running the reaction in a wide range of common and inert solvents. C<sub>1</sub>-C<sub>6</sub> alcohol solvents are

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preferred and isopropyl alcohol most preferred. The reactions can be run at temperatures ranging from 20-25° up to the reflux temperature of the alcohol employed. The preferred temperature range for conducting the reaction is between 50° up to the reflux temperature of the alcohol employed. When the substituted C-terminal amine (VI) is a 1-amino-3,5-cis-dimethyl cyclohexyldicarboxylate it is preferably prepared as follows. To dimethyl-5-isophthalate in acetic acid and methanol, is added rhodium in alumina in a high-pressure bottle. The bottle is saturated with hydrogen at 55 psi and shaken for one week of time. The mixture is then filtered through a thick layer of celite cake and rinsed with methanol three times, the solvents are removed under reduced pressure (with heat) to give a concentrate. The concentrate is triturated with ether and filtered again to give the desired C-terminal amine (VI). When the substituted C-terminal amine (VI) is 1-amino-3,5-cis-dimethoxy cyclohexane it is preferably following the general procedure above and making non-critical variations but starting with 3,5-dimethoxyaniline.

When the substituted C-terminal amine (VI) is an aminomethyl group where the substituent on the methyl group is an aryl group, for example  $\text{NH}_2\text{-CH}_2\text{-aryl}$ , is not commercially available it is preferably prepared as follows. A suitable starting material is the (appropriately substituted) aralkyl compound. The first step is bromination of the alkyl substituent via methods known to those skilled in the art, see for example R.C. Larock in Comprehensive Organic Transformations, VCH Publishers, 1989, p. 313. Next the alkyl halide is reacted with azide to produce the aryl-(alkyl)-azide. Last the azide is reduced to the corresponding amine by



hydrogen/catalyst to give the C-terminal amine (VI) of formula  $\text{NH}_2\text{-CH}_2\text{-R}_\text{C}\text{-aryl}$ .

SCHEME B discloses an alternative process for production of the enantiomerically pure (S,R)-protected alcohol (VII) from the (S)-protected compound (III). In the alternative process, the (S)-protected compound (III) is first reacted with the appropriately substituted C-terminal amine  $\text{R}_\text{C}\text{-NH}_2$  (VI) using the preferred conditions described above to produce the corresponding (S)-protected ketone (XI) which is then reduced using the preferred conditions described above to produce the corresponding (S,R)-protected alcohol (VII).

SCHEME C discloses another alternative process for production of enantiomerically pure (S,R)-protected alcohol (VII) but this time from the epoxide (V). In the process of SCHEME C, the epoxide (V) is reacted with azide to produce the corresponding enantiomerically pure (S,R)-protected azide (XII). Conditions to conduct the azide mediated epoxide opening are known to those skilled in the art, see for example, J. March, Advanced Organic Chemistry, 3<sup>rd</sup> Edition, John Wiley & Sons Publishers, 1985, p. 380. Next, the (S,R)-protected azide (XII) is reduced to the corresponding protected amine (XIII) by methods known to those skilled in the art. Preferred reducing conditions to reduce the (S,R)-protected azide (XII) in the presence of a *t*-butoxycarbonyl N-protecting group include catalytic hydrogenation, the conditions for which are known to those skilled in the art. Alternative reducing conditions which may be used to avoid N-deprotection with protecting groups other than *t*-butoxycarbonyl are known to those skilled in the art, see for example, R.C. Larock in Comprehensive Organic Transformations, VCH Publishers, 1989, p. 409. Last, the

(S,R)-amine (XIII) is transformed to the corresponding protected alcohol (VII) by nitrogen alkylation with a compound of the formula  $R_C-X_3$ .  $X_3$  is an appropriate leaving group, such as but not limited to, -Cl, -Br, -I, -O-mesylate, -O-tosylate, O-triflate, etc.  $X_3$  may also be an aldehyde; the corresponding coupling with (XIII) via the known reductive amination procedure gives the protected (S,R)-alcohol (VII).

In the formation of compounds of formula (I), the protected alcohol (VII) is reacted with an appropriately substituted amide forming agent (IX) such as, for example, an anhydride, acyl halide, or acid of the formulas  $(R_N)_2O$  or  $R_NX$  or  $R_NOH$  (IX) respectively, by means known to those skilled in the art to produce the corresponding (S,R)-substituted amine (IA). Nitrogen acylation conditions for reaction of the alcohol (VII) with an amide forming agent (IX) to produce the corresponding compound (IA) are known to those skilled in the art and can be found, for example, in R.C. Larock in Comprehensive Organic Transformations, VCH Publishers, 1989, p. 981, 979, and 972. The (S,R)-protected amine (IA) is deprotected to the corresponding compounds (I) by means known to those skilled in the art for removal of amine protecting group. Suitable means for removal of the amine protecting group depend on the nature of the protecting group. Those skilled in the art, knowing the nature of a specific protecting group, know which reagent is preferable for its removal. For example, it is preferred to remove the preferred protecting group, BOC, by dissolving the (S,R)-protected amine (IA) in a trifluoroacetic acid/dichloromethane (1/1) mixture. When complete, the solvents are removed under reduced pressure to give the corresponding (S,R)-amine (I) (as the

corresponding salt, i.e. trifluoroacetic acid salt) which is used without further purification. However, if desired, the (S,R)-amine (I) can be purified further by means known to those skilled in the art, such as for example, recrystallization. Further, if the non-salt form is desired that also can be obtained by means known to those skilled in the art, such as for example, preparing the free base amine via treatment of the salt with mild basic conditions. Additional BOC deprotection conditions and deprotection conditions for other protecting groups can be found in T.W. Green and P.G.M. Wuts in "Protective Groups in Organic Chemistry, John Wiley and Sons, 1991, p. 309. Suitable chemically suitable salts include trifluoroacetate, and the anion of mineral acids such as chloride, sulfate, phosphate; preferred is trifluoroacetate.

In the formation of compounds of formula (X), alcohol (VII) is further protected as described above to form the diprotected compound (XB). Compound (XB) is then reacted with an appropriately substituted amide forming agent (IX) to form compound (XA), as described above for compound (IA). Deprotection of (XA) to compounds (X) is conducted as described for the transformation of compound (IA) to compounds (I).

The protection of amines is conducted, where appropriate, by methods known to those skilled in the art. Amino protecting groups are known to those skilled in the art. See for example, "Protecting Groups in Organic Synthesis", John Wiley and sons, New York, N.Y., 1981, Chapter 7; "Protecting Groups in Organic Chemistry", Plenum Press, New York, N.Y., 1973, Chapter 2. When the amino protecting group is no longer needed, it is removed by methods known to those skilled in the

art. By definition the amino protecting group must be readily removable. A variety of suitable methodologies are known to those skilled in the art; see also T.W. Green and P.G.M. Wuts in "Protective Groups in Organic Chemistry, John Wiley and Sons, 1991. Suitable amino protecting groups include t-butoxycarbonyl, benzyloxycarbonyl, formyl, trityl, phthalimido, trichloroacetyl, chloroacetyl, bromoacetyl, iodoacetyl, 4-phenylbenzyloxycarbonyl, 2-methylbenzyloxycarbonyl, 4-ethoxybenzyloxycarbonyl, 4-fluorobenzyloxycarbonyl, 4-chlorobenzyloxycarbonyl, 3-chlorobenzyloxycarbonyl, 2-chlorobenzyloxycarbonyl, 2,4-dichlorobenzyloxycarbonyl, 4-bromobenzyloxycarbonyl, 3-bromobenzyloxycarbonyl, 4-nitrobenzyloxycarbonyl, 4-cyanobenzyloxycarbonyl, 2-(4-xenyl)isopropoxycarbonyl, 1,1-diphenyleth-1-yloxycarbonyl, 1,1-diphenylprop-1-yloxycarbonyl, 2-phenylprop-2-yloxycarbonyl, 2-(p-toluy)prop-2-yloxy-carbonyl, cyclopentanyloxycarbonyl, 1-methylcyclopentanyloxycarbonyl, cyclohexanyloxycarbonyl, 1-methylcyclohexanyloxycabonyl, 2-methylcyclohexanyloxycarbonyl, 2-(4-toluylsulfonyl)ethoxycarbonyl, 2-(methylsulfonyl)-ethoxycarbonyl, 2-(triphenylphosphino)ethoxycarbonyl, fluorenylmethoxycarbonyl, 2-(trimethylsilyl)ethoxy-carbonyl, allyloxycarbonyl, 1-(trimethylsilylmethyl)prop-1-enyloxycarbonyl, 5-benzisoxalylmethoxycarbonyl, 4-acetoxybenzyloxycarbonyl, 2,2,2-trichloroethoxycarbonyl, 2-ethynyl-2-propoxycarbonyl, cyclopropylmethoxycarbonyl, 4-(decyloxy)benzyloxycarbonyl, isobronnyloxycarbonyl, 1-piperidyloxycarbonyl, 9-fluoroenylmethyl carbonate, -CH=CH<sub>2</sub> and phenyl-C(=N)-H.

It is preferred that the protecting group be t-butoxycarbonyl (BOC) and/or benzyloxycarbonyl (CBZ), it is more preferred that the protecting group be t-

butoxycarbonyl. One skilled in the art will recognize suitable methods of introducing a *t*-butoxycarbonyl or benzyloxycarbonyl protecting group and may additionally consult T.W. Green and P.G.M. Wuts in "Protective Groups in Organic Chemistry, John Wiley and Sons, 1991 for guidance.

The compounds of the invention may contain geometric or optical isomers as well as tautomers. Thus, the invention includes all tautomers and pure geometric isomers, such as the *E* and *Z* geometric isomers, as well as mixtures thereof. Further, the invention includes pure enantiomers and diastereomers as well as mixtures thereof, including racemic mixtures. The individual geometric isomers, enantiomers or diastereomers may be prepared or isolated by methods known to those skilled in the art, including but not limited to chiral chromatography; preparing diastereomers, separating the diastereomers and converting the diastereomers into enantiomers through the use of a chiral resolving agent.

Compounds of the invention with designated stereochemistry can be included in mixtures, including racemic mixtures, with other enantiomers, diastereomers, geometric isomers or tautomers. In a preferred aspect, compounds of the invention with (S, R, R), (S, S, S), or (S, R, S) stereochemistry are typically present in these mixtures in excess of 50 percent. Preferably, compounds of the invention with designated stereochemistry are present in these mixtures in excess of 80 percent. More preferably, compounds of the invention with designated stereochemistry are present in these mixtures in excess of 90 percent. Even more preferably, compounds of the invention with designated stereochemistry are present in these mixtures in excess of 99 percent.

The invention encompasses pharmaceutically acceptable salts of the compounds of formula (AA), (I) and (X). Pharmaceutically acceptable salts are preferred over the corresponding amines of formula (AA), (I) or (X) since they produce compounds which are more water soluble, stable and/or more crystalline. Pharmaceutically acceptable salts are any salt which retains the activity of the parent compound and does not impart any deleterious or undesirable effect on the subject to whom it is administered and in the context in which it is administered. Pharmaceutically acceptable salts include salts of both inorganic and organic acids. The preferred pharmaceutically acceptable salts include salts of the following acids acetic, aspartic, benzenesulfonic, benzoic, bicarbonic, bisulfuric, bitartaric, butyric, calcium edetate, camsylic, carbonic, chlorobenzoic, citric, edetic, edisylic, estolic, esyl, esylic, formic, fumaric, gluceptic, gluconic, glutamic, glycollylarsanilic, hexamic, hexylresorcinoic, hydrabamic, hydrobromic, hydrochloric, hydroiodic, hydroxynaphthoic, isethionic, lactic, lactobionic, maleic, malic, malonic, mandelic, methanesulfonic, methylnitric, methylsulfuric, mucic, muconic, napsylic, nitric, oxalic, p-nitromethanesulfonic, pamoic, pantothenic, phosphoric, monohydrogen phosphoric, dihydrogen phosphoric, phthalic, polygalactouronic, propionic, salicylic, stearic, succinic, succinic, sulfamic, sulfanilic, sulfonic, sulfuric, tannic, tartaric, teoclic and toluenesulfonic. For other acceptable salts, see *Int. J. Pharm.*, 33, 201-217 (1986) and *J. Pharm. Sci.*, 66(1), 1, (1977).

The invention provides compounds, compositions, kits, and methods for inhibiting beta-secretase enzyme

activity and A beta peptide production. Inhibition of beta-secretase enzyme activity halts or reduces the production of A beta from APP and reduces or eliminates the formation of beta-amyloid deposits in the brain.

#### Methods of the Invention

The compounds of the invention, and pharmaceutically acceptable salts thereof, are useful for treating humans or animals suffering from a condition characterized by a pathological form of beta-amyloid peptide, such as beta-amyloid plaques, and for helping to prevent or delay the onset of such a condition.

As used herein, the term "treating" means that the compounds of the invention can be used in humans with at least a tentative diagnosis of disease. The compounds of the invention will delay or slow the progression of the disease thereby giving the individual a more useful life span.

The term "preventing" means that the compounds of the invention are useful when administered to a patient who has not been diagnosed as possibly having the disease at the time of administration, but who would normally be expected to develop the disease or be at increased risk for the disease. The compounds of the invention will slow the development of disease symptoms, delay the onset of the disease, or prevent the individual from developing the disease at all. Preventing also includes administration of the compounds of the invention to those individuals thought to be predisposed to the disease due to age, familial history, genetic or chromosomal abnormalities, and/or due to the presence of one or more biological markers for the disease, such as a known genetic mutation of APP or APP cleavage products in brain tissues or fluids.

In treating or preventing the above diseases, the compounds of the invention are administered in a therapeutically effective amount. The therapeutically effective amount will vary depending on the particular compound used and the route of administration, as is known to those skilled in the art.

In treating a patient displaying any of the diagnosed above conditions a physician may administer a compound of the invention immediately and continue administration indefinitely, as needed. In treating patients who are not diagnosed as having Alzheimer's disease, but who are believed to be at substantial risk for Alzheimer's disease, the physician should preferably start treatment when the patient first experiences early pre-Alzheimer's symptoms such as, memory or cognitive problems associated with aging. In addition, there are some patients who may be determined to be at risk for developing Alzheimer's through the detection of a genetic marker such as APOE4 or other biological indicators that are predictive for Alzheimer's disease. In these situations, even though the patient does not have symptoms of the disease, administration of the compounds of the invention may be started before symptoms appear, and treatment may be continued indefinitely to prevent or delay the onset of the disease.

#### Dosage Forms and Amounts

The compounds of the invention can be administered orally, parenterally, (IV, IM, depo-IM, SQ, and depo SQ), sublingually, intranasally (inhalation), intrathecally, topically, or rectally. Dosage forms known to those of skill in the art are suitable for delivery of the compounds of the invention.



Compositions are provided that contain therapeutically effective amounts of the compounds of the invention. The compounds are preferably formulated into suitable pharmaceutical preparations such as tablets, capsules, or elixirs for oral administration or in sterile solutions or suspensions for parenteral administration. Typically the compounds described above are formulated into pharmaceutical compositions using techniques and procedures well known in the art.

About 1 to 500 mg of a compound or mixture of compounds of the invention or a physiologically acceptable salt or ester is compounded with a physiologically acceptable vehicle, carrier, excipient, binder, preservative, stabilizer, flavor, etc., in a unit dosage form as called for by accepted pharmaceutical practice. The amount of active substance in those compositions or preparations is such that a suitable dosage in the range indicated is obtained. The compositions are preferably formulated in a unit dosage form, each dosage containing from about 2 to about 100 mg, more preferably about 10 to about 30 mg of the active ingredient. The term "unit dosage form" refers to physically discrete units suitable as unitary dosages for human subjects and other mammals, each unit containing a predetermined quantity of active material calculated to produce the desired therapeutic effect, in association with a suitable pharmaceutical excipient.

To prepare compositions, one or more compounds of the invention are mixed with a suitable pharmaceutically acceptable carrier. Upon mixing or addition of the compound(s), the resulting mixture may be a solution, suspension, emulsion, or the like. Liposomal suspensions may also be suitable as pharmaceutically acceptable

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carriers. These may be prepared according to methods known to those skilled in the art. The form of the resulting mixture depends upon a number of factors, including the intended mode of administration and the solubility of the compound in the selected carrier or vehicle. The effective concentration is sufficient for lessening or ameliorating at least one symptom of the disease, disorder, or condition treated and may be empirically determined.

Pharmaceutical carriers or vehicles suitable for administration of the compounds provided herein include any such carriers known to those skilled in the art to be suitable for the particular mode of administration. In addition, the active materials can also be mixed with other active materials that do not impair the desired action, or with materials that supplement the desired action, or have another action. The compounds may be formulated as the sole pharmaceutically active ingredient in the composition or may be combined with other active ingredients.

Where the compounds exhibit insufficient solubility, methods for solubilizing may be used. Such methods are known and include, but are not limited to, using cosolvents such as dimethylsulfoxide (DMSO), using surfactants such as Tween®, and dissolution in aqueous sodium bicarbonate. Derivatives of the compounds, such as salts or prodrugs may also be used in formulating effective pharmaceutical compositions.

The concentration of the compound is effective for delivery of an amount upon administration that lessens or ameliorates at least one symptom of the disorder for which the compound is administered. Typically, the

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compositions are formulated for single dosage administration.

The compounds of the invention may be prepared with carriers that protect them against rapid elimination from the body, such as time-release formulations or coatings. Such carriers include controlled release formulations, such as, but not limited to, microencapsulated delivery systems. The active compound is included in the pharmaceutically acceptable carrier in an amount sufficient to exert a therapeutically useful effect in the absence of undesirable side effects on the patient treated. The therapeutically effective concentration may be determined empirically by testing the compounds in known *in vitro* and *in vivo* model systems for the treated disorder.

The compounds and compositions of the invention can be enclosed in multiple or single dose containers. The enclosed compounds and compositions can be provided in kits, for example, including component parts that can be assembled for use. For example, a compound inhibitor in lyophilized form and a suitable diluent may be provided as separated components for combination prior to use. A kit may include a compound inhibitor and a second therapeutic agent for co-administration. The inhibitor and second therapeutic agent may be provided as separate component parts. A kit may include a plurality of containers, each container holding one or more unit dose of the compound of the invention. The containers are preferably adapted for the desired mode of administration, including, but not limited to tablets, gel capsules, sustained-release capsules, and the like for oral administration; depot products, pre-filled syringes, ampoules, vials, and the like for parenteral

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administration; and patches, medipads, creams, and the like for topical administration.

The concentration of active compound in the drug composition will depend on absorption, inactivation, and excretion rates of the active compound, the dosage schedule, and amount administered as well as other factors known to those of skill in the art.

The active ingredient may be administered at once, or may be divided into a number of smaller doses to be administered at intervals of time. It is understood that the precise dosage and duration of treatment is a function of the disease being treated and may be determined empirically using known testing protocols or by extrapolation from *in vivo* or *in vitro* test data. It is to be noted that concentrations and dosage values may also vary with the severity of the condition to be alleviated. It is to be further understood that for any particular subject, specific dosage regimens should be adjusted over time according to the individual need and the professional judgment of the person administering or supervising the administration of the compositions, and that the concentration ranges set forth herein are exemplary only and are not intended to limit the scope or practice of the claimed compositions.

If oral administration is desired, the compound should be provided in a composition that protects it from the acidic environment of the stomach. For example, the composition can be formulated in an enteric coating that maintains its integrity in the stomach and releases the active compound in the intestine. The composition may also be formulated in combination with an antacid or other such ingredient.

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Oral compositions will generally include an inert diluent or an edible carrier and may be compressed into tablets or enclosed in gelatin capsules. For the purpose of oral therapeutic administration, the active compound or compounds can be incorporated with excipients and used in the form of tablets, capsules, or troches. Pharmaceutically compatible binding agents and adjuvant materials can be included as part of the composition.

The tablets, pills, capsules, troches, and the like can contain any of the following ingredients or compounds of a similar nature: a binder such as, but not limited to, gum tragacanth, acacia, corn starch, or gelatin; an excipient such as microcrystalline cellulose, starch, or lactose; a disintegrating agent such as, but not limited to, alginic acid and corn starch; a lubricant such as, but not limited to, magnesium stearate; a gildant, such as, but not limited to, colloidal silicon dioxide; a sweetening agent such as sucrose or saccharin; and a flavoring agent such as peppermint, methyl salicylate, or fruit flavoring.

When the dosage unit form is a capsule, it can contain, in addition to material of the above type, a liquid carrier such as a fatty oil. In addition, dosage unit forms can contain various other materials, which modify the physical form of the dosage unit, for example, coatings of sugar and other enteric agents. The compounds can also be administered as a component of an elixir, suspension, syrup, wafer, chewing gum or the like. A syrup may contain, in addition to the active compounds, sucrose as a sweetening agent and certain preservatives, dyes and colorings, and flavors.

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The active materials can also be mixed with other active materials that do not impair the desired action, or with materials that supplement the desired action.

Solutions or suspensions used for parenteral, intradermal, subcutaneous, or topical application can include any of the following components: a sterile diluent such as water for injection, saline solution, fixed oil, a naturally occurring vegetable oil such as sesame oil, coconut oil, peanut oil, cottonseed oil, and the like, or a synthetic fatty vehicle such as ethyl oleate, and the like, polyethylene glycol, glycerine, propylene glycol, or other synthetic solvent; antimicrobial agents such as benzyl alcohol and methyl parabens; antioxidants such as ascorbic acid and sodium bisulfite; chelating agents such as ethylenediaminetetraacetic acid (EDTA); buffers such as acetates, citrates, and phosphates; and agents for the adjustment of tonicity such as sodium chloride and dextrose. Parenteral preparations can be enclosed in ampoules, disposable syringes, or multiple dose vials made of glass, plastic, or other suitable material. Buffers, preservatives, antioxidants, and the like can be incorporated as required.

Where administered intravenously, suitable carriers include physiological saline, phosphate buffered saline (PBS), and solutions containing thickening and solubilizing agents such as glucose, polyethylene glycol, polypropyleneglycol, and mixtures thereof. Liposomal suspensions including tissue-targeted liposomes may also be suitable as pharmaceutically acceptable carriers. These may be prepared according to methods known for example, as described in U.S. Patent No. 4,522,811.

The active compounds may be prepared with carriers that protect the compound against rapid elimination from the body, such as time-release formulations or coatings. Such carriers include controlled release formulations, such as, but not limited to, implants and microencapsulated delivery systems, and biodegradable, biocompatible polymers such as collagen, ethylene vinyl acetate, polyanhydrides, polyglycolic acid, polyorthoesters, polylactic acid, and the like. Methods for preparation of such formulations are known to those skilled in the art.

The compounds of the invention can be administered orally, parenterally (IV, IM, depo-IM, SQ, and depo-SQ), sublingually, intranasally (inhalation), intrathecally, topically, or rectally. Dosage forms known to those skilled in the art are suitable for delivery of the compounds of the invention.

Compounds of the invention may be administered enterally or parenterally. When administered orally, compounds of the invention can be administered in usual dosage forms for oral administration as is well known to those skilled in the art. These dosage forms include the usual solid unit dosage forms of tablets and capsules as well as liquid dosage forms such as solutions, suspensions, and elixirs. When the solid dosage forms are used, it is preferred that they be of the sustained release type so that the compounds of the invention need to be administered only once or twice daily.

The oral dosage forms are administered to the patient 1, 2, 3, or 4 times daily. It is preferred that the compounds of the invention be administered either three or fewer times, more preferably once or twice daily. Hence, it is preferred that the compounds of the

invention be administered in oral dosage form. It is preferred that whatever oral dosage form is used, that it be designed so as to protect the compounds of the invention from the acidic environment of the stomach. Enteric coated tablets are well known to those skilled in the art. In addition, capsules filled with small spheres each coated to protect from the acidic stomach, are also well known to those skilled in the art.

When administered orally, an administered amount therapeutically effective to inhibit beta-secretase activity, to inhibit A beta production, to inhibit A beta deposition, or to treat or prevent AD is from about 0.1 mg/day to about 1,000 mg/day. It is preferred that the oral dosage is from about 1 mg/day to about 100 mg/day. It is more preferred that the oral dosage is from about 5 mg/day to about 50 mg/day. It is understood that while a patient may be started at one dose, that dose may be varied over time as the patient's condition changes.

Compounds of the invention may also be advantageously delivered in a nano crystal dispersion formulation. Preparation of such formulations is described, for example, in U.S. Patent 5,145,684. Nano crystalline dispersions of HIV protease inhibitors and their method of use are described in U.S. Patent No. 6,045,829. The nano crystalline formulations typically afford greater bioavailability of drug compounds.

The compounds of the invention can be administered parenterally, for example, by IV, IM, depo-IM, SC, or depo-SC. When administered parenterally, a therapeutically effective amount of about 0.5 to about 100 mg/day, preferably from about 5 to about 50 mg daily should be delivered. When a depot formulation is used for injection once a month or once every two weeks, the



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dose should be about 0.5 mg/day to about 50 mg/day, or a monthly dose of from about 15 mg to about 1,500 mg. In part because of the forgetfulness of the patients with Alzheimer's disease, it is preferred that the parenteral dosage form be a depo formulation.

The compounds of the invention can be administered sublingually. When given sublingually, the compounds of the invention should be given one to four times daily in the amounts described above for IM administration.

The compounds of the invention can be administered intranasally. When given by this route, the appropriate dosage forms are a nasal spray or dry powder, as is known to those skilled in the art. The dosage of the compounds of the invention for intranasal administration is the amount described above for IM administration.

The compounds of the invention can be administered intrathecally. When given by this route the appropriate dosage form can be a parenteral dosage form as is known to those skilled in the art. The dosage of the compounds of the invention for intrathecal administration is the amount described above for IM administration.

The compounds of the invention can be administered topically. When given by this route, the appropriate dosage form is a cream, ointment, or patch. Because of the amount of the compounds of the invention to be administered, the patch is preferred. When administered topically, the dosage is from about 0.5 mg/day to about 200 mg/day. Because the amount that can be delivered by a patch is limited, two or more patches may be used. The number and size of the patch is not important, what is important is that a therapeutically effective amount of the compounds of the invention be delivered as is known to those skilled in the art. The compounds of the

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invention can be administered rectally by suppository as is known to those skilled in the art. When administered by suppository, the therapeutically effective amount is from about 0.5 mg to about 500 mg.

The compounds of the invention can be administered by implants as is known to those skilled in the art. When administering a compound of the invention by implant, the therapeutically effective amount is the amount described above for depot administration.

Given a particular compound of the invention and a desired dosage form, one skilled in the art would know how to prepare and administer the appropriate dosage form.

The compounds of the invention are used in the same manner, by the same routes of administration, using the same pharmaceutical dosage forms, and at the same dosing schedule as described above, for preventing disease or treating patients with MCI (mild cognitive impairment) and preventing or delaying the onset of Alzheimer's disease in those who would progress from MCI to AD, for treating or preventing Down's syndrome, for treating humans who have Hereditary Cerebral Hemorrhage with Amyloidosis of the Dutch-Type, for treating cerebral amyloid angiopathy and preventing its potential consequences, i.e. single and recurrent lobar hemorrhages, for treating other degenerative dementias, including dementias of mixed vascular and degenerative origin, dementia associated with Parkinson's disease, dementia associated with progressive supranuclear palsy, dementia associated with cortical basal degeneration, and diffuse Lewy body type of Alzheimer's disease.

The compounds of the invention can be used in combination, with each other or with other therapeutic

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agents or approaches used to treat or prevent the conditions listed above. Such agents or approaches include: acetylcholine esterase inhibitors such as tacrine (tetrahydroaminoacridine, marketed as COGNEX®), donepezil hydrochloride, (marketed as Aricept® and rivastigmine (marketed as Exelon®); gamma-secretase inhibitors; anti-inflammatory agents such as cyclooxygenase II inhibitors; anti-oxidants such as Vitamin E and ginkgolides; immunological approaches, such as, for example, immunization with A beta peptide or administration of anti-A beta peptide antibodies; statins; and direct or indirect neurotropic agents such as Cerebrolysin®, AIT-082 (Emilieu, 2000, *Arch. Neurol.* 57:454), and other neurotropic agents of the future.

In addition, the compounds of formula (AA), (I) or (X) can also be used with inhibitors of P-glycoprotein (P-gp). P-gp inhibitors and the use of such compounds are known to those skilled in the art. See for example, *Cancer Research*, 53, 4595-4602 (1993), *Clin. Cancer Res.*, 2, 7-12 (1996), *Cancer Research*, 56, 4171-4179 (1996), International Publications WO99/64001 and WO01/10387. The important thing is that the blood level of the P-gp inhibitor be such that it exerts its effect in inhibiting P-gp from decreasing brain blood levels of the compounds of formula (A). To that end the P-gp inhibitor and the compounds of formula (A) can be administered at the same time, by the same or different route of administration, or at different times. The important thing is not the time of administration but having an effective blood level of the P-gp inhibitor.

Suitable P-gp inhibitors include cyclosporin A, verapamil, tamoxifen, quinidine, Vitamin E-TGPS, ritonavir, megestrol acetate, progesterone, rapamycin,

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10,11-methanodibenzosuberane, phenothiazines, acridine derivatives such as GF120918, FK506, VX-710, LY335979, PSC-833, GF-102,918 and other steroids. It is to be understood that additional agents will be found that have the same function and therefore achieve the same outcome; such compounds are also considered to be useful.

The P-gp inhibitors can be administered orally, parenterally, (IV, IM, IM-depo, SQ, SQ-depo), topically, sublingually, rectally, intranasally, intrathecally and by implant.

The therapeutically effective amount of the P-gp inhibitors is from about 0.1 to about 300 mg/kg/day, preferably about 0.1 to about 150 mg/kg daily. It is understood that while a patient may be started on one dose, that dose may have to be varied over time as the patient's condition changes.

When administered orally, the P-gp inhibitors can be administered in usual dosage forms for oral administration as is known to those skilled in the art. These dosage forms include the usual solid unit dosage forms of tablets and capsules as well as liquid dosage forms such as solutions, suspensions and elixirs. When the solid dosage forms are used, it is preferred that they be of the sustained release type so that the P-gp inhibitors need to be administered only once or twice daily. The oral dosage forms are administered to the patient one thru four times daily. It is preferred that the P-gp inhibitors be administered either three or fewer times a day, more preferably once or twice daily. Hence, it is preferred that the P-gp inhibitors be administered in solid dosage form and further it is preferred that the solid dosage form be a sustained release form which permits once or twice daily dosing. It is preferred that

what ever dosage form is used, that it be designed so as to protect the P-gp inhibitors from the acidic environment of the stomach. Enteric coated tablets are well known to those skilled in the art. In addition, capsules filled with small spheres each coated to protect from the acidic stomach, are also well known to those skilled in the art.

In addition, the P-gp inhibitors can be administered parenterally. When administered parenterally they can be administered IV, IM, depo-IM, SQ or depo-SQ.

The P-gp inhibitors can be given sublingually. When given sublingually, the P-gp inhibitors should be given one thru four times daily in the same amount as for IM administration.

The P-gp inhibitors can be given intranasally. When given by this route of administration, the appropriate dosage forms are a nasal spray or dry powder as is known to those skilled in the art. The dosage of the P-gp inhibitors for intranasal administration is the same as for IM administration.

The P-gp inhibitors can be given intrathecally. When given by this route of administration the appropriate dosage form can be a parenteral dosage form as is known to those skilled in the art.

The P-gp inhibitors can be given topically. When given by this route of administration, the appropriate dosage form is a cream, ointment or patch. Because of the amount of the P-gp inhibitors needed to be administered the patch is preferred. However, the amount that can be delivered by a patch is limited. Therefore, two or more patches may be required. The number and size of the patch is not important, what is important is that

a therapeutically effective amount of the P-gp inhibitors be delivered as is known to those skilled in the art.

The P-gp inhibitors can be administered rectally by suppository as is known to those skilled in the art.

The P-gp inhibitors can be administered by implants as is known to those skilled in the art.

There is nothing novel about the route of administration nor the dosage forms for administering the P-gp inhibitors. Given a particular P-gp inhibitor, and a desired dosage form, one skilled in the art would know how to prepare the appropriate dosage form for the P-gp inhibitor.

It should be apparent to one skilled in the art that the exact dosage and frequency of administration will depend on the particular compounds of the invention administered, the particular condition being treated, the severity of the condition being treated, the age, weight, general physical condition of the particular patient, and other medication the individual may be taking as is well known to administering physicians who are skilled in this art.

#### **Inhibition of APP Cleavage**

The compounds of the invention inhibit cleavage of APP between Met595 and Asp596 numbered for the APP695 isoform, or a mutant thereof, or at a corresponding site of a different isoform, such as APP751 or APP770, or a mutant thereof (sometimes referred to as the "beta secretase site"). While not wishing to be bound by a particular theory, inhibition of beta-secretase activity is thought to inhibit production of beta amyloid peptide (A beta). Inhibitory activity is demonstrated in one of a variety of inhibition assays, whereby cleavage of an

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APP substrate in the presence of a beta-secretase enzyme is analyzed in the presence of the inhibitory compound, under conditions normally sufficient to result in cleavage at the beta-secretase cleavage site. Reduction of APP cleavage at the beta-secretase cleavage site compared with an untreated or inactive control is correlated with inhibitory activity. Assay systems that can be used to demonstrate efficacy of the compound inhibitors of the invention are known. Representative assay systems are described, for example, in U.S. Patents No. 5,942,400, 5,744,346, as well as in the Examples below.

The enzymatic activity of beta-secretase and the production of A beta can be analyzed *in vitro* or *in vivo*, using natural, mutated, and/or synthetic APP substrates, natural, mutated, and/or synthetic enzyme, and the test compound. The analysis may involve primary or secondary cells expressing native, mutant, and/or synthetic APP and enzyme, animal models expressing native APP and enzyme, or may utilize transgenic animal models expressing the substrate and enzyme. Detection of enzymatic activity can be by analysis of one or more of the cleavage products, for example, by immunoassay, fluorometric or chromogenic assay, HPLC, or other means of detection. Inhibitory compounds are determined as those having the ability to decrease the amount of beta-secretase cleavage product produced in comparison to a control, where beta-secretase mediated cleavage in the reaction system is observed and measured in the absence of inhibitory compounds.

#### **Beta-Secretase**

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Various forms of beta-secretase enzyme are known, and are available and useful for assay of enzyme activity and inhibition of enzyme activity. These include native, recombinant, and synthetic forms of the enzyme. Human beta-secretase is known as Beta Site APP Cleaving Enzyme (BACE), Asp2, and memapsin 2, and has been characterized, for example, in U.S. Patent No. 5,744,346 and published PCT patent applications WO98/22597, WO00/03819, WO01/23533, and WO00/17369, as well as in literature publications (Hussain et al., 1999, *Mol. Cell. Neurosci.* 14:419-427; Vassar et al., 1999, *Science* 286:735-741; Yan et al., 1999, *Nature* 402:533-537; Sinha et al., 1999, *Nature* 40:537-540; and Lin et al., 2000, *PNAS USA* 97:1456-1460). Synthetic forms of the enzyme have also been described (WO98/22597 and WO00/17369). Beta-secretase can be extracted and purified from human brain tissue and can be produced in cells, for example mammalian cells expressing recombinant enzyme.

Preferred rearranged compounds are effective to inhibit about 50% of beta-secretase enzymatic activity at a concentration of less than 50 micromolar, preferably at a concentration of 10 micromolar or less, more preferably 1 micromolar or less, and most preferably 10 nanomolar or less.



#### **APP Substrate**

Assays that demonstrate inhibition of beta-secretase-mediated cleavage of APP can utilize any of the known forms of APP, including the 695 amino acid "normal" isotype described by Kang et al., 1987, *Nature* 325:733-6, the 770 amino acid isotype described by Kitaguchi et. al., 1981, *Nature* 331:530-532, and variants such as the Swedish Mutation (KM670-1NL) (APP-SW), the London Mutation (V7176F), and others. See, for example, U.S. Patent No. 5,766,846 and also Hardy, 1992, *Nature Genet.* 1:233-234, for a review of known variant mutations. Additional useful substrates include the dibasic amino acid modification, APP-KK disclosed, for example, in WO 00/17369, fragments of APP, and synthetic peptides containing the beta-secretase cleavage site, wild type (WT) or mutated form, e.g., SW, as described, for example, in U.S. Patent No 5,942,400 and WO00/03819.

The APP substrate contains the beta-secretase cleavage site of APP (KM-DA or NL-DA) for example, a complete APP peptide or variant, an APP fragment, a recombinant or synthetic APP, or a fusion peptide. Preferably, the fusion peptide includes the beta-secretase cleavage site fused to a peptide having a moiety useful for enzymatic assay, for example, having isolation and/or detection properties. A useful moiety may be an antigenic epitope for antibody binding, a label or other detection moiety, a binding substrate, and the like.

#### **Antibodies**

Products characteristic of APP cleavage can be measured by immunoassay using various antibodies, as described, for example, in Pirttila et al., 1999, *Neuro.*

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Lett. 249:21-4, and in U.S. Patent No. 5,612,486. Useful antibodies to detect A beta include, for example, the monoclonal antibody 6E10 (Senetek, St. Louis, MO) that specifically recognizes an epitope on amino acids 1-16 of the A beta peptide; antibodies 162 and 164 (New York State Institute for Basic Research, Staten Island, NY) that are specific for human A beta 1-40 and 1-42, respectively; and antibodies that recognize the junction region of beta-amyloid peptide, the site between residues 16 and 17, as described in U.S. Patent No. 5,593,846. Antibodies raised against a synthetic peptide of residues 591 to 596 of APP and SW192 antibody raised against 590-596 of the Swedish mutation are also useful in immunoassay of APP and its cleavage products, as described in U.S. Patent Nos. 5,604,102 and 5,721,130.

#### **Assay Systems**

Assays for determining APP cleavage at the beta-secretase cleavage site are well known in the art. Exemplary assays, are described, for example, in U.S. Patent Nos. 5,744,346 and 5,942,400, and described in the Examples below.

#### **Cell Free Assays**

Exemplary assays that can be used to demonstrate the inhibitory activity of the compounds of the invention are described, for example, in WO00/17369, WO 00/03819, and U.S. Patents No. 5,942,400 and 5,744,346. Such assays can be performed in cell-free incubations or in cellular incubations using cells expressing a beta-secretase and an APP substrate having a beta-secretase cleavage site.

An APP substrate containing the beta-secretase cleavage site of APP, for example, a complete APP or

variant, an APP fragment, or a recombinant or synthetic APP substrate containing the amino acid sequence: KM-DA or NL-DA, is incubated in the presence of beta-secretase enzyme, a fragment thereof, or a synthetic or recombinant polypeptide variant having beta-secretase activity and effective to cleave the beta-secretase cleavage site of APP, under incubation conditions suitable for the cleavage activity of the enzyme. Suitable substrates optionally include derivatives that may be fusion proteins or peptides that contain the substrate peptide and a modification useful to facilitate the purification or detection of the peptide or its beta-secretase cleavage products. Useful modifications include the insertion of a known antigenic epitope for antibody binding; the linking of a label or detectable moiety, the linking of a binding substrate, and the like.

Suitable incubation conditions for a cell-free in vitro assay include, for example: approximately 200 nanomolar to 10 micromolar substrate, approximately 10 to 200 picomolar enzyme, and approximately 0.1 nanomolar to 10 micromolar inhibitor compound, in aqueous solution, at an approximate pH of 4 -7, at approximately 37 degrees C, for a time period of approximately 10 minutes to 3 hours. These incubation conditions are exemplary only, and can be varied as required for the particular assay components and/or desired measurement system. Optimization of the incubation conditions for the particular assay components should account for the specific beta-secretase enzyme used and its pH optimum, any additional enzymes and/or markers that might be used in the assay, and the like. Such optimization is routine and will not require undue experimentation.

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One useful assay utilizes a fusion peptide having maltose binding protein (MBP) fused to the C-terminal 125 amino acids of APP-SW. The MBP portion is captured on an assay substrate by anti-MBP capture antibody. Incubation of the captured fusion protein in the presence of beta-secretase results in cleavage of the substrate at the beta-secretase cleavage site. Analysis of the cleavage activity can be, for example, by immunoassay of cleavage products. One such immunoassay detects a unique epitope exposed at the carboxy terminus of the cleaved fusion protein, for example, using the antibody SW192. This assay is described, for example, in U.S. Patent No 5,942,400.

#### **Cellular Assay**

Numerous cell-based assays can be used to analyze beta-secretase activity and/or processing of APP to release A beta. Contact of an APP substrate with a beta-secretase enzyme within the cell and in the presence or absence of a compound inhibitor of the invention can be used to demonstrate beta-secretase inhibitory activity of the compound. Preferably, assay in the presence of a useful inhibitory compound provides at least about 30%, most preferably at least about 50% inhibition of the enzymatic activity, as compared with a non-inhibited control.

In one embodiment, cells that naturally express beta-secretase are used. Alternatively, cells are modified to express a recombinant beta-secretase or synthetic variant enzyme as discussed above. The APP substrate may be added to the culture medium and is preferably expressed in the cells. Cells that naturally express APP, variant or mutant forms of APP, or cells

transformed to express an isoform of APP, mutant or variant APP, recombinant or synthetic APP, APP fragment, or synthetic APP peptide or fusion protein containing the beta-secretase APP cleavage site can be used, provided that the expressed APP is permitted to contact the enzyme and enzymatic cleavage activity can be analyzed.

Human cell lines that normally process A beta from APP provide a useful means to assay inhibitory activities of the compounds of the invention. Production and release of A beta and/or other cleavage products into the culture medium can be measured, for example by immunoassay, such as Western blot or enzyme-linked immunoassay (EIA) such as by ELISA.

Cells expressing an APP substrate and an active beta-secretase can be incubated in the presence of a compound inhibitor to demonstrate inhibition of enzymatic activity as compared with a control. Activity of beta-secretase can be measured by analysis of one or more cleavage products of the APP substrate. For example, inhibition of beta-secretase activity against the substrate APP would be expected to decrease release of specific beta-secretase induced APP cleavage products such as A beta.

Although both neural and non-neural cells process and release A beta, levels of endogenous beta-secretase activity are low and often difficult to detect by EIA. The use of cell types known to have enhanced beta-secretase activity, enhanced processing of APP to A beta, and/or enhanced production of A beta are therefore preferred. For example, transfection of cells with the Swedish Mutant form of APP (APP-SW); with APP-KK; or with APP-SW-KK provides cells having enhanced beta-secretase

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activity and producing amounts of A beta that can be readily measured.

In such assays, for example, the cells expressing APP and beta-secretase are incubated in a culture medium under conditions suitable for beta-secretase enzymatic activity at its cleavage site on the APP substrate. On exposure of the cells to the compound inhibitor, the amount of A beta released into the medium and/or the amount of CTF99 fragments of APP in the cell lysates is reduced as compared with the control. The cleavage products of APP can be analyzed, for example, by immune reactions with specific antibodies, as discussed above.

Preferred cells for analysis of beta-secretase activity include primary human neuronal cells, primary transgenic animal neuronal cells where the transgene is APP, and other cells such as those of a stable 293 cell line expressing APP, for example, APP-SW.

#### ***In vivo Assays: Animal Models***

Various animal models can be used to analyze beta-secretase activity and /or processing of APP to release A beta, as described above. For example, transgenic animals expressing APP substrate and beta-secretase enzyme can be used to demonstrate inhibitory activity of the compounds of the invention. Certain transgenic animal models have been described, for example, in U.S. Patent Nos.: 5,877,399; 5,612,486; 5,387,742; 5,720,936; 5,850,003; 5,877,015,, and 5,811,633, and in Ganes et al., 1995, Nature 373:523. Preferred are animals that exhibit characteristics associated with the pathophysiology of AD. Administration of the compound inhibitors of the invention to the transgenic mice described herein provides an alternative method for

demonstrating the inhibitory activity of the compounds. Administration of the compounds in a pharmaceutically effective carrier and via an administrative route that reaches the target tissue in an appropriate therapeutic amount is also preferred.

Inhibition of beta-secretase mediated cleavage of APP at the beta-secretase cleavage site and of A beta release can be analyzed in these animals by measure of cleavage fragments in the animal's body fluids such as cerebral fluid or tissues. Analysis of brain tissues for A beta deposits or plaques is preferred.

On contacting an APP substrate with a beta-secretase enzyme in the presence of an inhibitory compound of the invention and under conditions sufficient to permit enzymatic mediated cleavage of APP and/or release of A beta from the substrate, the compounds of the invention are effective to reduce beta-secretase-mediated cleavage of APP at the beta-secretase cleavage site and/or effective to reduce released amounts of A beta. Where such contacting is the administration of the inhibitory compounds of the invention to an animal model, for example, as described above, the compounds are effective to reduce A beta deposition in brain tissues of the animal, and to reduce the number and/or size of beta amyloid plaques. Where such administration is to a human subject, the compounds are effective to inhibit or slow the progression of disease characterized by enhanced amounts of A beta, to slow the progression of AD in the, and/or to prevent onset or development of AD in a patient at risk for the disease.

Unless defined otherwise, all scientific and technical terms used herein have the same meaning as commonly understood by one of skill in the art to which

this invention belongs. All patents and publications referred to herein are hereby incorporated by reference for all purposes.

### Definitions

The definitions and explanations below are for the terms as used throughout this entire document including both the specification and the claims.

It should be noted that, as used in this specification and the appended claims, the singular forms "a," "an," and "the" include plural referents unless the content clearly dictates otherwise. Thus, for example, reference to a composition containing "a compound" includes a mixture of two or more compounds. It should also be noted that the term "or" is generally employed in its sense including "and/or" unless the content clearly dictates otherwise.

The symbol "-" in general represents a bond between two atoms in the chain. Thus  $\text{CH}_3\text{-O-CH}_2\text{-CH(R}_1\text{)-CH}_3$  represents a 2-substituted-1-methoxypropane compound. In addition, the symbol "-" represents the point of attachment of the substituent to a compound. Thus for example aryl(C<sub>1</sub>-C<sub>6</sub>)alkyl- indicates an alkylaryl group, such as benzyl, attached to the compound at the alkyl moiety.

Where multiple substituents are indicated as being attached to a structure, it is to be understood that the substituents can be the same or different. Thus for example "R<sub>m</sub> optionally substituted with 1, 2 or 3 R<sub>q</sub> groups" indicates that R<sub>m</sub> is substituted with 1, 2, or 3 R<sub>q</sub> groups where the R<sub>q</sub> groups can be the same or different.



APP, amyloid precursor protein, is defined as any APP polypeptide, including APP variants, mutations, and isoforms, for example, as disclosed in U.S. Patent No. 5,766,846.

A beta, amyloid beta peptide, is defined as any peptide resulting from beta-secretase mediated cleavage of APP, including peptides of 39, 40, 41, 42, and 43 amino acids, and extending from the beta-secretase cleavage site to amino acids 39, 40, 41, 42, or 43.

Beta-secretase (BACE1, Asp2, Memapsin 2) is an aspartyl protease that mediates cleavage of APP at the amino-terminal edge of A beta. Human beta-secretase is described, for example, in WO00/17369.

Pharmaceutically acceptable refers to those properties and/or substances that are acceptable to the patient from a pharmacological/toxicological point of view and to the manufacturing pharmaceutical chemist from a physical/chemical point of view regarding composition, formulation, stability and patient acceptance.

A therapeutically effective amount is defined as an amount effective to reduce or lessen at least one symptom of the disease being treated or to reduce or delay onset of one or more clinical markers or symptoms of the disease.

By "alkyl" and "C<sub>1</sub>-C<sub>6</sub> alkyl" in the present invention is meant straight or branched chain alkyl groups having 1-6 carbon atoms, such as, methyl, ethyl, propyl, isopropyl, n-butyl, sec-butyl, tert-butyl, pentyl, 2-pentyl, isopentyl, neopentyl, hexyl, 2-hexyl, 3-hexyl, and 3-methylpentyl. It is understood that in cases where an alkyl chain of a substituent (e.g. of an alkyl, alkoxy or alkenyl group) is shorter or longer than 6 carbons, it

will be so indicated in the second "C" as, for example, "C<sub>1</sub>-C<sub>10</sub>" indicates a maximum of 10 carbons.

By "alkoxy" and "C<sub>1</sub>-C<sub>6</sub> alkoxy" in the present invention is meant straight or branched chain alkyl groups having 1-6 carbon atoms, attached through at least one divalent oxygen atom, such as, for example, methoxy, ethoxy, propoxy, isopropoxy, n-butoxy, sec-butoxy, tert-butoxy, pentoxy, isopentoxy, neopentoxy, hexoxy, and 3-methylpentoxy.

By the term "halogen" in the present invention is meant fluorine, bromine, chlorine, and iodine.

"Alkenyl" and "C<sub>2</sub>-C<sub>6</sub> alkenyl" means straight and branched hydrocarbon radicals having from 2 to 6 carbon atoms and from one to three double bonds and includes, for example, ethenyl, propenyl, 1-but-3-enyl, 1-pent-3-enyl, 1-hex-5-enyl and the like.

"Alkynyl" and "C<sub>2</sub>-C<sub>6</sub> alkynyl" means straight and branched hydrocarbon radicals having from 2 to 6 carbon atoms and one or two triple bonds and includes ethynyl, propynyl, butynyl, pentyn-2-yl and the like.

As used herein, the term "cycloalkyl" refers to saturated carbocyclic radicals having three to twelve carbon atoms. The cycloalkyl can be monocyclic, or a polycyclic fused system. Examples of such radicals include cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and cycloheptyl. The cycloalkyl groups herein are unsubstituted or, as specified, substituted in one or more substitutable positions with various groups. For example, such cycloalkyl groups may be optionally substituted with C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, halogen, hydroxy, cyano, nitro, amino, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, amino(C<sub>1</sub>-C<sub>6</sub>)alkyl, mono(C<sub>1</sub>-

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C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl or di(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl.

By "aryl" is meant an aromatic carbocyclic group having a single ring (e.g., phenyl), multiple rings (e.g., biphenyl), or multiple condensed rings in which at least one is aromatic, (e.g., 1,2,3,4-tetrahydronaphthyl, naphthyl), which is optionally mono-, di-, or trisubstituted. Preferred aryl groups of the present invention are phenyl, 1-naphthyl, 2-naphthyl, indanyl, indenyl, dihydronaphthyl, tetralinyl or 6,7,8,9-tetrahydro-5H-benzo[a]cycloheptenyl. The aryl groups herein are unsubstituted or, as specified, substituted in one or more substitutable positions with various groups. For example, such aryl groups may be optionally substituted with, for example, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, halogen, hydroxy, cyano, nitro, amino, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, amino(C<sub>1</sub>-C<sub>6</sub>)alkyl, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, -COOH, -C(=O)O(C<sub>1</sub>-C<sub>6</sub> alkyl), -C(=O)NH<sub>2</sub>, -C(=O)N(mono- or di-C<sub>1</sub>-C<sub>6</sub> alkyl), -S(C<sub>1</sub>-C<sub>6</sub> alkyl), -SO<sub>2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -O-C(=O)(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-C(=O)-(C<sub>1</sub>-C<sub>6</sub> alkyl), -N(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(=O)-(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>6</sub> alkyl), -N(C<sub>1</sub>-C<sub>6</sub> alkyl)-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-C(=O)NH<sub>2</sub>, -NH-C(=O)N(mono- or di-C<sub>1</sub>-C<sub>6</sub> alkyl), -NH(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(=O)-NH<sub>2</sub> or -NH(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(=O)-N-(mono- or di-C<sub>1</sub>-C<sub>6</sub> alkyl).

By "heteroaryl" is meant one or more aromatic ring systems of 5-, 6-, or 7-membered rings which includes fused ring systems of 9-11 atoms containing at least one and up to four heteroatoms selected from nitrogen, oxygen, or sulfur. Preferred heteroaryl groups of the present invention include pyridinyl, pyrimidinyl,

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quinolinyl, benzothienyl, indolyl, indolinyl,  
pyridazinyl, pyrazinyl, isoindolyl, isoquinolyl,  
quinazolinyl, quinoxalinyl, phthalazinyl, imidazolyl,  
isoxazolyl, pyrazolyl, oxazolyl, thiazolyl, indolizinyl,  
indazolyl, benzothiazolyl, benzimidazolyl, benzofuranyl,  
furanyl, thienyl, pyrrolyl, oxadiazolyl, thiadiazolyl,  
triazolyl, tetrazolyl, oxazolopyridinyl,  
imidazopyridinyl, isothiazolyl, naphthyridinyl,  
cinnolinyl, carbazolyl, beta-carbolinyl, isochromanyl,  
chromanyl, tetrahydroisoquinolinyl, isoindolinyl,  
isobenzotetrahydrofuranlyl, isobenzotetrahydrothienyl,  
isobenzothienyl, benzoxazolyl, pyridopyridinyl,  
benzotetrahydrofuranlyl, benzotetrahydrothienyl, purinyl,  
benzodioxolyl, triazinyl, phenoxazinyl, phenothiazinyl,  
pteridinyl, benzothiazolyl, imidazopyridinyl,  
imidazothiazolyl, dihydrobenzisoxazinyl, benzisoxazinyl,  
benzoxazinyl, dihydrobenzisothiazinyl, benzopyranyl,  
benzothiopyranyl, coumarinyl, isocoumarinyl, chromonyl,  
chromanonyl, pyridinyl-N-oxide, tetrahydroquinolinyl,  
dihydroquinolinyl, dihydroquinolinonyl,  
dihydroisoquinolinonyl, dihydrocoumarinyl,  
dihydroisocoumarinyl, isoindolinonyl, benzodioxanyl,  
benzoxazolinonyl, pyrrolyl N-oxide,, pyrimidinyl N-oxide,  
pyridazinyl N-oxide, pyrazinyl N-oxide, quinolinyl N-  
oxide, indolyl N-oxide, indolinyl N-oxide, isoquinolyl N-  
oxide, quinazolinyl N-oxide, quinoxalinyl N-oxide,  
phthalazinyl N-oxide, imidazolyl N-oxide, isoxazolyl N-  
oxide, oxazolyl N-oxide, thiazolyl N-oxide, indolizinyl N-  
oxide, indazolyl N-oxide, benzothiazolyl N-oxide,  
benzimidazolyl N-oxide, pyrrolyl N-oxide, oxadiazolyl N-  
oxide, thiadiazolyl N-oxide, triazolyl N-oxide, tetrazolyl  
N-oxide, benzothiopyranyl S-oxide, benzothiopyranyl S,S-  
dioxide. The heteroaryl groups herein are unsubstituted

or, as specified, substituted in one or more substitutable positions with various groups. For example, such heteroaryl groups may be optionally substituted with C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, halogen, hydroxy, cyano, nitro, amino, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, amino(C<sub>1</sub>-C<sub>6</sub>)alkyl, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl or di(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, -COOH, -C(=O)O(C<sub>1</sub>-C<sub>6</sub> alkyl), -C(=O)NH<sub>2</sub>, -C(=O)N(mono- or di-C<sub>1</sub>-C<sub>6</sub> alkyl), -S(C<sub>1</sub>-C<sub>6</sub> alkyl), -SO<sub>2</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl), -O-C(=O)(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-C(=O)-(C<sub>1</sub>-C<sub>6</sub> alkyl), -N(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(=O)-(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>6</sub> alkyl), -N(C<sub>1</sub>-C<sub>6</sub> alkyl)-SO<sub>2</sub>-(C<sub>1</sub>-C<sub>6</sub> alkyl), -NH-C(=O)NH<sub>2</sub>, -NH-C(=O)N(mono- or di-C<sub>1</sub>-C<sub>6</sub> alkyl), -NH(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(=O)-NH<sub>2</sub> or -NH(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(=O)-N-(mono- or di-C<sub>1</sub>-C<sub>6</sub> alkyl).

By "heterocycle", "heterocycloalkyl" or "heterocyclyl" is meant one or more carbocyclic ring systems of 3-, 4-, 5-, 6-, or 7-membered rings which includes fused ring systems of 9-11 atoms containing at least one and up to four heteroatoms selected from nitrogen, oxygen, or sulfur. Preferred heterocycles of the present invention include morpholinyl, thiomorpholinyl, thiomorpholinyl S-oxide, thiomorpholinyl S,S-dioxide, piperazinyl, homopiperazinyl, pyrrolidinyl, pyrrolinyl, tetrahydropyranyl, piperidinyl, tetrahydrofuranyl, tetrahydrothienyl, homopiperidinyl, homomorpholinyl, homothiomorpholinyl, homothiomorpholinyl S,S-dioxide, oxazolidinonyl, dihydropyrazolyl, dihydropyrrolyl, dihydropyrazinyl, dihydropyridinyl, dihydropyrimidinyl, dihydrofuryl, dihydropyranyl, azepanyl, diazepanyl, tetrahydrothienyl S-oxide, tetrahydrothienyl S,S-dioxide and homothiomorpholinyl S-oxide. The heterocycle groups herein maybe unsubstituted

or, as specified, substituted in one or more substitutable positions with various groups. For example, such heterocycle groups may be optionally substituted with C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, halogen, hydroxy, cyano, nitro, amino, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>1</sub>-C<sub>6</sub> haloalkyl, C<sub>1</sub>-C<sub>6</sub> haloalkoxy, amino(C<sub>1</sub>-C<sub>6</sub>)alkyl, mono(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl, di(C<sub>1</sub>-C<sub>6</sub>)alkylamino(C<sub>1</sub>-C<sub>6</sub>)alkyl or =O.

All patents and publications referred to herein are hereby incorporated by reference for all purposes.

Structures were named using Name Pro IUPAC Naming Software, version 5.09, available from Advanced Chemical Development, Inc., 90 Adelaide Street West, Toronto, Ontario, M5H 3V9, Canada.

The present invention may be better understood with reference to the following examples. These examples are intended to be representative of specific embodiments of the invention, and are not intended as limiting the scope of the invention.

#### CHEMISTRY EXAMPLES

The following detailed examples describe how to prepare the various compounds and/or perform the various processes of the invention and are to be construed as merely illustrative, and not limitations of the preceding disclosure in any way whatsoever. Those skilled in the art will promptly recognize appropriate variations from the procedures both as to reactants and as to reaction conditions and techniques.

PREPARATION 1 tert-Butyl (1S)-3-bromo-1-(3,5-difluorobenzyl)-2-oxopropylcarbamate (III)

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N-methyl-morpholine (5.83 Ml, 53 mmole, 1.05 eq.) is added to (2S)-2-[(tert-butoxycarbonyl)amino]-3-(3,5-difluorophenyl)propanoic acid (II, 15 g, 50 mmole) in THF (100 mL) and the reaction is cooled to  $-78^{\circ}$ . Isobutyl chloroformate (6.87 mL, 53 mmole, 1.05 eq.) is added rapidly. The cold bath is then removed and the mixture stirred for 1 hr. The reaction was monitored by TLC to insure completion of the reaction and the mixture is then filtered and washed with dry THF (50 ml) and kept cold in the filtered flask at  $-20^{\circ}$ .

In a ice-salt bath is placed a 500 ml graduate cylinder containing ether (200 mL) and aqueous potassium hydroxide (40%, 60 ml). 1-methyl-3-nitro-1-nitrosoguanidine (5.6 g, 106 mmole, 2.1 eq.) is added slowly with stirring and temperature kept below zero degree. The mixture turned yellow and the bubbling lasted for 10 minutes. The stirring is stopped and without mixing the layers, the top diazomethane ethereal layer is transferred with non-ground tip pipette into the stirred mixed anhydride mixture at  $-20^{\circ}$ . The reaction is monitored by TLC (ethyl acetate/hexane, 50/50;  $R_f = 0.69$ ). After 1 hour nitrogen is then bubbled into the mixture. The solvent is removed under reduced pressure (with heat) and the mixture is partitioned between ether and water. The phases are separated, the organic phase is washed with bicarbonate, saline, dried over anhydrous sodium sulfate, filtered, and solvent removed under reduced pressure (with heat). The residue is dissolved in ether (100 mL) and hydrobromous acid (48%, 15 mL, 135 mmole, 2.7 eq.) is added at  $-20^{\circ}$ , the cold bath is removed and the mixture is stirred for another half hour. The reaction is monitored by TLC (ethyl acetate/hexane, 50/50;  $R_f = 0.88$ ). The mixture is partitioned between

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ether and water, washed with bicarbonate, saline, dried over anhydrous sodium sulfate, filtered, and the solvent removed. The residue is recrystallized from ethanol to give the title compound, TLC (ethyl acetate/hexane, 50/50)  $R_f = 0.88$ ; MS ( $MH^+$ ) = 379.3

PREPARATION 2 tert-Butyl (1S, 2S)-3-bromo-1-(3,5-difluorobenzyl)-2-hydroxypropylcarbamate (IV)

Sodium borohydride (1.32 g, 34.9 mmole, 1.1 eq.) is added to tert-Butyl (1S)-3-bromo-1-(3,5-difluorobenzyl)-2-oxopropylcarbamate (III, PREPARATION 1, 12 g, 31.75 mmole) dissolved in absolute alcohol (500 mL)  $-78^\circ$ . The reaction mixture is stirred for 30 minutes and monitored by TLC (ethyl acetate/hexane, 20/80;  $R_f = 0.2$ ). The mixture is quenched with water (10 mL) and the solvent removed under reduced pressure with heat (not exceeding  $30^\circ$ ) to dryness. The solid is partitioned between dichloromethane and water, washed with saline, dried over anhydrous sodium sulfate. The solvent is removed under reduced pressure to give the title compound, TLC (ethyl acetate/hexane, 20/80)  $R_f = 0.2$ ; MS ( $MH^+$ ) = 381.2

PREPARATION 3 tert-Butyl (1S)-2-(3,5-difluorophenyl)-1-[(2S)-oxiranyl]ethylcarbamate (V)

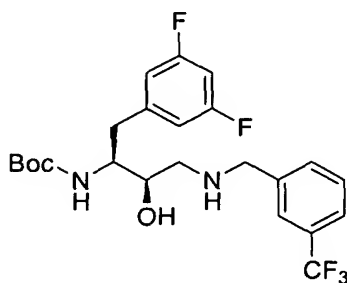
tert-Butyl (1S, 2S)-3-bromo-1-(3,5-difluorobenzyl)-2-hydroxypropylcarbamate (IV, PREPARATION 2) is dissolved in absolute alcohol (150 mL) and ethyl acetate (100 mL) and potassium hydroxide (2.3 g, 34.9 mmole, 1.1eq.) in ethyl alcohol (85%, 5mL) is added at  $-20^\circ$ . The cold bath is then removed and the mixture stirred for 30 minutes. The reaction is monitored by TLC (ethyl acetate/hexane, 20/80). When the reaction is complete, it is diluted with dichloromethane and extracted, washed with water,



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saline, dried over anhydrous sodium sulfate and the solvent removed under reduced pressure. The crude material is purified by flash chromatography on silica gel to give the title compound, TLC (ethyl acetate/hexane, 20/80)  $R_f = 0.3$ ; MS ( $MH^+$ ) = 300.4.

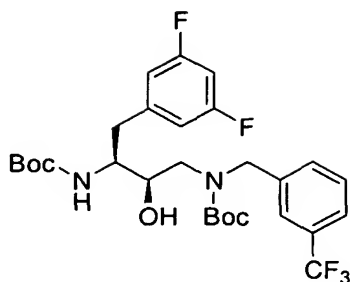
PREPARATION 4: *tert*-Butyl (1*S*,2*R*)-1-(3,5-difluorobenzyl)-2-hydroxy-3-[(3-(trifluoromethyl)benzyl)amino]-propylcarbamate



*tert*-Butyl (1*S*)-2-(3,5-difluorophenyl)-1-[(2*S*)-oxiranyl]ethylcarbamate (PREPARATION 3, 8.5 g, 28.4 mmole) is mixed with isopropanol (145 ml). The reaction flask is charged with 3-(trifluoromethyl)benzylamine. The reaction mixture is heated to reflux for 3 hours, HPLC analysis indicates complete disappearance of the epoxide. The reaction mixture is concentrated under reduced pressure and the residue is partitioned between ethyl acetate and aqueous hydrochloric acid. The organic phase is separated and washed with aqueous hydrochloric acid, bicarbonate, and saline then dried over sodium sulfate. Concentration under reduced pressure and recrystallization from hot hexane gives the title compound, MS ( $MH^+$ ) 475.

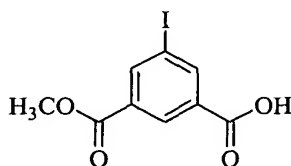
PREPARATION 5: *tert*-Butyl (1*S*,2*R*)-1-(3,5-difluorobenzyl)-2-hydroxy-3-{(tert-butyloxy)carbonyl-3-{(trifluoromethyl)benzyl}amino}propylcarbamate

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To a solution of *tert*-butyl (1*S*,2*R*)-1-(3,5-difluorobenzyl)-2-hydroxy-3-[(3-(trifluoromethyl)benzyl)amino]propylcarbamate (PREPARATION 4, 6.2 g, 13.1 mmole) in THF (70 ml) at 0° is added di-*tert*-butyl pyrocarbonate (6.3 g, 28.9 mmole). The reaction mixture is stirred at 20-25° for 18 hours. The reaction mixture is diluted with diethyl ether and washed with bicarbonate, 0.5 M citric acid, and saline then dried over sodium sulfate and concentrated to give the title compound, MS ( $MNa^+$ ) 597.

PREPARATION 6: 3-iodo-5-(methoxycarbonyl)benzoic acid

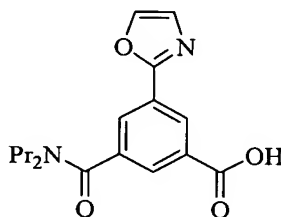


To an ice-cold, stirred solution of commercially available 3-amino-5-(methoxycarbonyl)benzoic acid (5.19 g, 26.59 mmol) in 2 N hydrochloric acid (156 mL) was added a solution of sodium nitrite (1.84 g, 26.67 mmol) in water (10.8 mL). This mixture was then added dropwise to an ice-cold, stirred solution of potassium iodide (8.84 g, 53.25 mmol) in water (26.2 mL). After stirring for 35 min, the reaction mixture was diluted with water

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and extracted with ethyl acetate. The organic layer was washed with 5% aqueous sodium thiosulfate, and saturated sodium chloride, dried (sodium sulfate), and concentrated under reduced pressure. Purification by flash column chromatography (silica, 50:50:2 hexanes/ethyl acetate/acetic acid) afforded the title compound (4.48 g, 55% yield) as an off-white solid. ESI-MS ( $m/z$ ): 305 [ $M + H$ ]<sup>+</sup>.

PREPARATION 7: 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoic acid



To a -70 °C solution of oxazole (4.0 g, 58 mmol) in tetrahydrofuran (100 mL) was added *n*-butyllithium (1.6 M in hexanes, 40 mL, 64 mmol). After 30 min, zinc chloride (1 M in diethyl ether, 166 mL, 166 mmol) was added and the reaction mixture was warmed to 0 °C for 1 h. To this mixture was added 3-iodo-5-(methoxycarbonyl)benzoic acid (PREPARATION 6, 21.4 g, 55 mmol) and palladium(0) tetrakis(triphenylphosphine) (2.7 g, 2.34 mmol). The reaction mixture was heated at reflux for 1 h. The reaction mixture was diluted with ethyl acetate (300 mL), washed with water, and saturated sodium chloride. The organic layer was dried (sodium sulfate) and concentrated under reduced pressure. Purification by silica gel plug (10-33% ethyl acetate/hexanes) provided an oxazole (17.7 g, 97%) as a light yellow solid: <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) δ

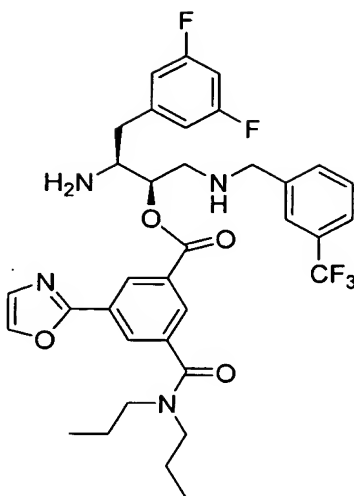
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8.73 (t,  $J = 2$  Hz, 1H), 8.24 (t,  $J = 2$  Hz, 1H), 8.11 (t,  $J = 2$  Hz, 1H), 7.77 (d,  $J = 1$  Hz, 1H), 7.28 (d,  $J = 1$  Hz, 1H), 3.97 (s, 3H), 3.49 (m, 2H), 3.19 (m, 2H), 1.71 (m, 2H), 1.57 (m, 2H), 1.01 (m, 3H), 0.76 (m, 3H).

To a stirred solution of the ester from step 1 (17.7 g, 53.6 mmol) in tetrahydrofuran (50 mL), methanol (25 mL), and water (25 mL) was added lithium hydroxide monohydrate (6.92 g, 165 mmol). The reaction mixture was stirred at room temperature for 2 h, and then concentrated under reduced pressure. The residue was partitioned between water (100 mL) and diethyl ether (100 mL). The aqueous layer was acidified to pH 4-5 with hydrochloric acid and extracted with ethyl acetate (3 x 200 mL). The combined organic layers were washed with saturated sodium chloride, dried (sodium sulfate), and concentrated under reduced pressure to one-half its original volume. The resulting precipitate was collected by filtration and washed with hexanes to provide the title compound (15.5 g, 91%) as an off-white solid: mp 131-133 °C;  $^1\text{H}$  NMR (300 MHz,  $\text{CD}_3\text{OD}$ )  $\delta$  8.72 (s, 1H), 8.22 (s, 1H), 8.10 (s, 1H), 8.06 (d,  $J = 1$  Hz, 1H), 7.36 (d,  $J = 1$  Hz, 1H), 3.52 (m, 2H), 3.25 (m, 2H), 1.76 (m, 2H), 1.62 (m, 2H), 1.02 (m, 3H), 0.76 (m, 3H); APCI MS  $m/z$  317  $[\text{M} + \text{H}]^+$ .

PREPARATION 8: (1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-  
({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-  
[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate  
dihydrochloride

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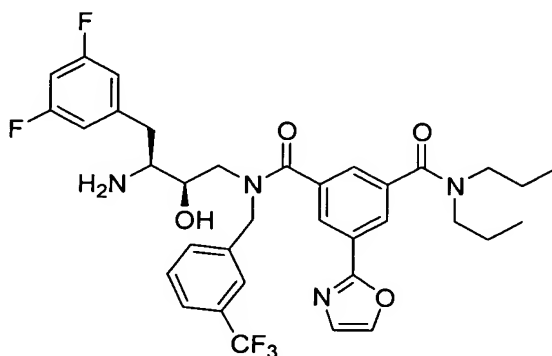
To a solution of *tert*-butyl (1*S*,2*R*)-1-(3,5-difluorobenzyl)-2-hydroxy-3-[(*tert*-butoxy)carbonyl-3-[(trifluoromethyl)benzyl]amino]propylcarbamate (PREPARATION 5, 594 mg, 1.0 mmole) in DMF (2 mL) is added 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoic acid (PREPARATION 7, 316 mg, 1.0 mmole), 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride (210 mg, 1.1 mmole), and 4-(dimethylamino)pyridine (146 mg, 1.2 mmole). After ~36 hours, the reaction mixture is diluted with ethyl acetate and washed with bicarbonate (2X) and brine (4X) then dried over sodium sulfate, filtered, and concentrated under reduced pressure. The concentrate is purified on silica gel by flash chromatography using a gradient solvent of ethyl acetate/hexane (20/80 to 50/50) to give (1*R*,2*S*)-2-[(*tert*-butoxycarbonyl)amino]-1-[(*tert*-butoxycarbonyl)[3-(trifluoromethyl)benzyl]amino]methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate, MS ( $MNa^+$ ) 895.

(1*R*,2*S*)-2-[(*tert*-butoxycarbonyl)amino]-1-[(*tert*-butoxycarbonyl)[3-(trifluoromethyl)benzyl]amino]methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-

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5-(1,3-oxazol-2-yl)benzoate (482 mg, 0.55 mmole) is dissolved in hydrochloric acid/dioxane (4N, 3 ml) is stirred for 1 hour at 20-25°. The solvent is then removed under reduced pressure to give the title compound, MS (MH<sup>+</sup>) 673.

PREPARATION 9: N-1-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(1,3-oxazol-2-yl)-N-3,N-3-dipropyl-N-1-[3-(trifluoromethyl)benzyl]-isophthalamide hydrochloride



To a solution of *tert*-butyl (1S,2R)-1-(3,5-difluorobenzyl)-2-hydroxy-3-[(3-(trifluoromethyl)benzyl)amino]propylcarbamate (PREPARATION 4, 393 mg, 0.83 mmole) in DMF (2 mL) is added 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoic acid (PREPARATION 7, 262 mg, 0.83 mmole), 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride (175 mg, 0.91 mmole), and 4-(dimethylamino)pyridine (122 mg, 1.0 mmole). After ~18 hours, the reaction mixture is diluted with ethyl acetate and washed with bicarbonate (2X) and brine (4X) then dried over sodium sulfate, filtered, and concentrated under reduced pressure. The concentrate is purified on silica gel by flash chromatography using a gradient solvent of ethyl acetate/hexane (50/50 to 70/30) to give *tert*-butyl (1S,2R)-1-(3,5-difluorobenzyl)-3-{[3-

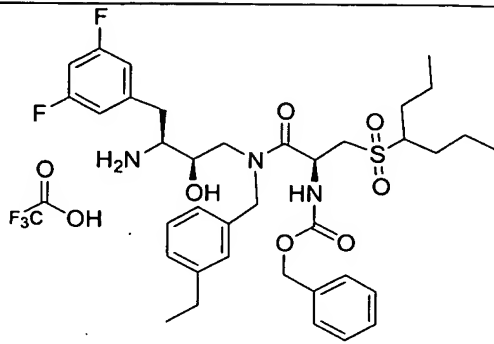
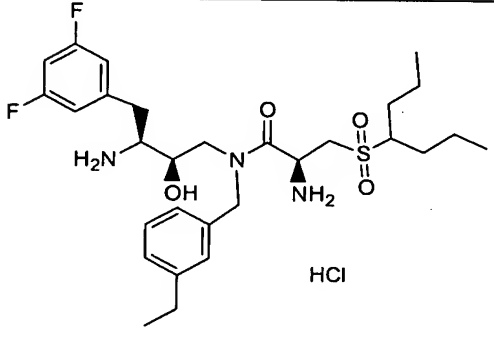
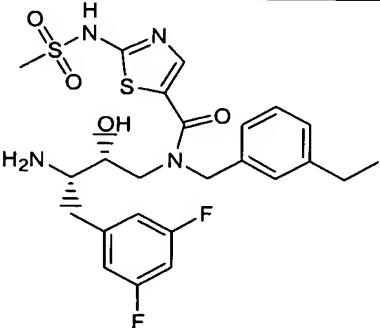
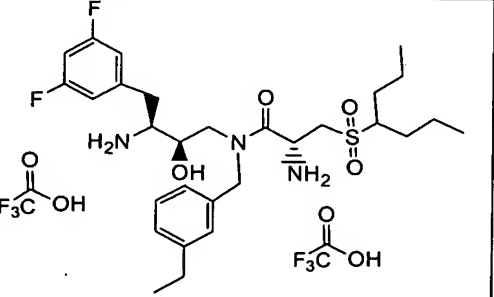
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[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoyl [3-(trifluoromethyl)benzyl]amino}-2-hydroxypropylcarbamate, MS (MH<sup>+</sup>) 773.

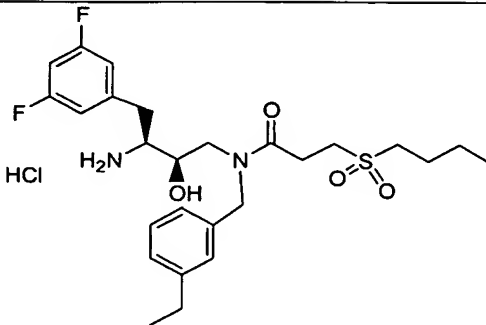
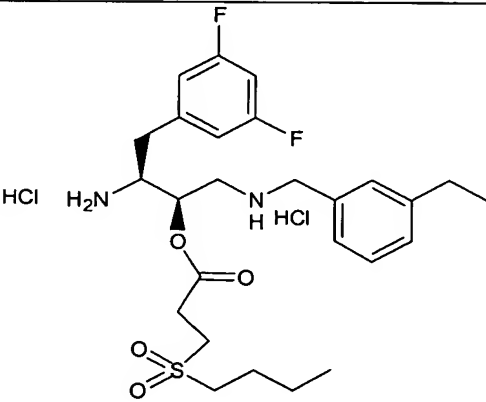
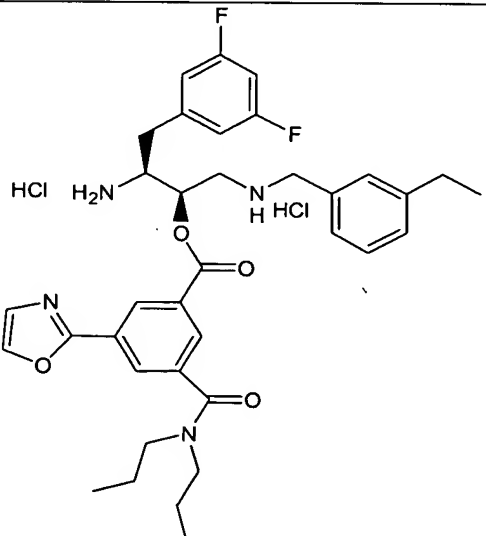
*tert*-butyl (1*S*,2*R*)-1-(3,5-difluorobenzyl)-3-{[3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoyl [3-(trifluoromethyl)benzyl]amino}-2-hydroxypropylcarbamate (226 mg, 0.29 mmole) is dissolved in hydrochloric acid/dioxane (4*N*, 2 ml) is stirred for 20 minutes at 20-25°. The solvent is then removed under reduced pressure and the crude material purified by reverse phase HPLC using a gradient solvent of acetonitrile/water with 0.5% trifluoroacetic acid. The trifluoroacetic acid salt obtained is converted to the hydrochloric salt by treatment with HCl in methanol (1.25 M, 5 mL). Concentration under reduced pressure gives the title compound, MS (MH<sup>+</sup>) 673.

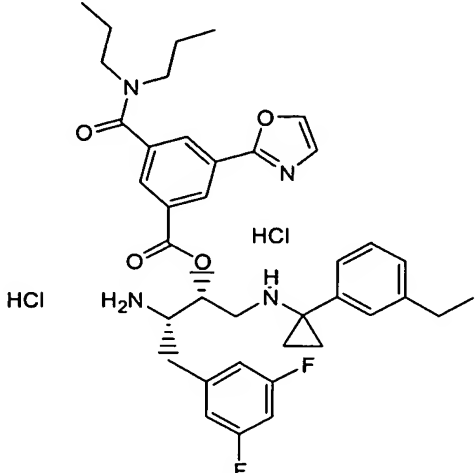
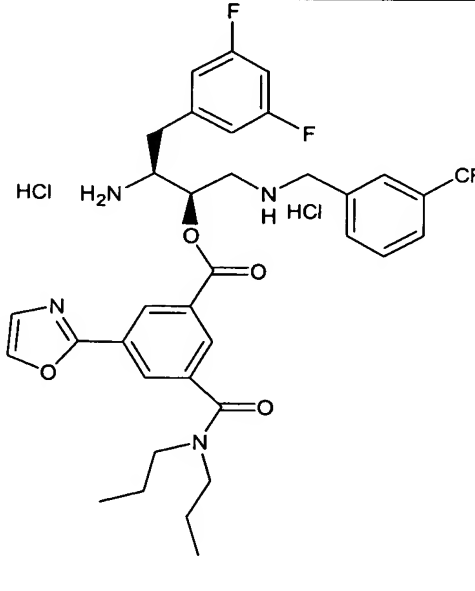
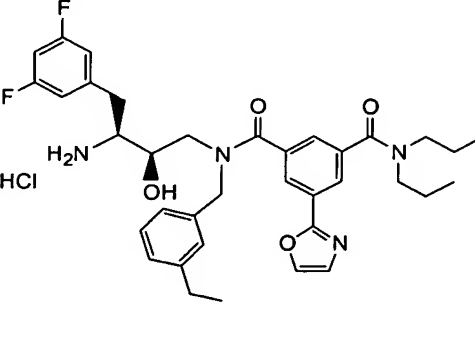
The following compounds are prepared essentially according to the procedures described in the schemes, charts, examples and preparations set forth herein.

Comp #	Structure	Compound Name(s)	[M+H] <sup>+</sup>
9		N <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)-N <sup>1</sup> -(3-ethylbenzyl)-D-alaninamide dihydrochloride	526

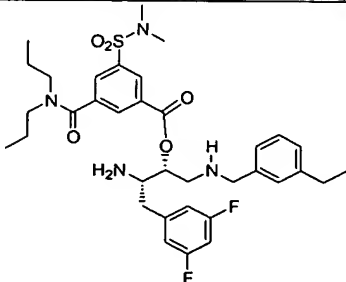
10		N¹-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-N¹-(3-ethylbenzyl)-N²[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninamide trifluoroacetate	702
11		N¹-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-N¹-(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide hydrochloride	568
12		N-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-N-(3-ethylbenzyl)-2-[(methylsulfonyl)amino]-1,3-thiazole-5-carboxamide	539
13		N¹-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-N¹-(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-L-alaninamide bis(trifluoroacetate)	568

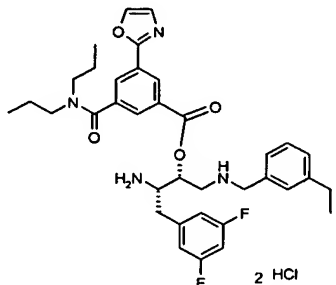
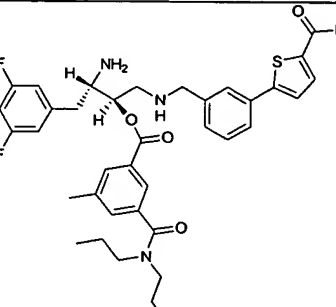
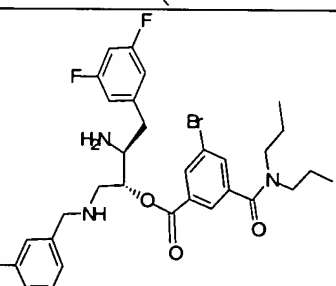
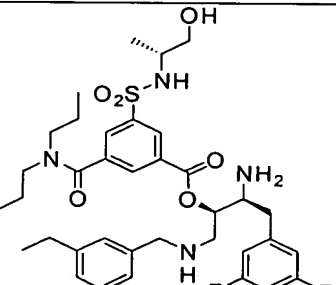
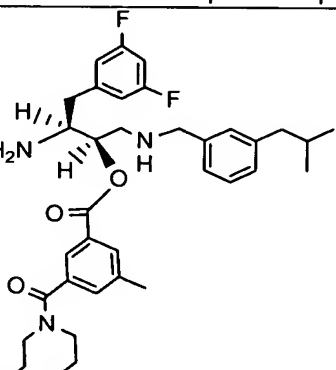


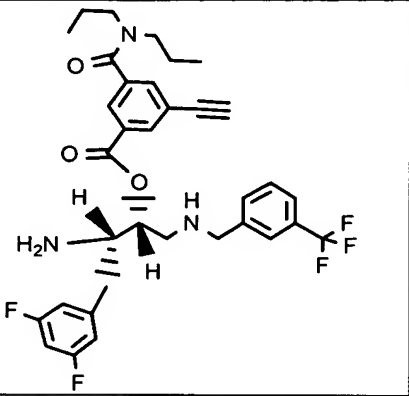
14		N-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)-N-(3-ethylbenzyl)propanamide hydrochloride	511
15		(1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-(butylsulfonyl)propanoate dihydrochloride	511
16		(1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate dihydrochloride	633

17		(1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate dihydrochloride	659
18		(1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate dihydrochloride	673
19		N¹-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-N(u)1(d)-(3-ethylbenzyl)-5-(1,3-oxazol-2-yl)-N³,N³-dipropylisophthalamide hydrochloride	633

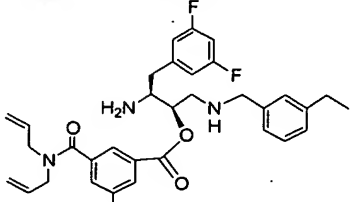
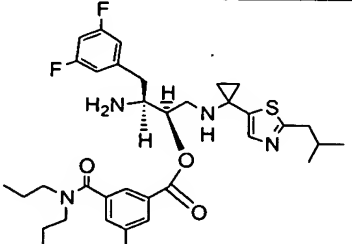
20		N¹-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(1,3-oxazol-2-yl)-N³,N³-dipropyl-N¹-[3-(trifluoromethyl)benzyl]isophthalamide hydrochloride	673
21		N¹-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(1,3-oxazol-2-yl)-N³,N³-dipropyl-N¹-[3-(trifluoromethyl)benzyl]isophthalamide	673
22		(1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-ethynylphenyl)cyclopropyl]amino)methylpropyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate	655
23		N¹-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)-N¹-(3-ethylbenzyl)-N²[(methoxy)carbonyl]-D-alaninamide dihydrochloride	584

24	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-{[(2-hydroxyethyl)amino]sulfonyl}benzoate	
26	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(2-isobutyl-1,3-thiazol-5-yl)methyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate	
28	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-isopropylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate	
30	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-isopropylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate	
32	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-{[(2-hydroxy-1,1-dimethylethyl)amino]sulfonyl}benzoate	
34	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(4-methyl-1,3-oxazol-2-yl)benzoate	
36	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(2-isobutyl-1,3-thiazol-5-yl)methyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate	
38	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-{[(3-hydroxypropyl)amino]sulfonyl}benzoate hydrochloride	
40	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-propylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
42	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[[butyl(methyl)amino]carbonyl]-5-methylbenzoate	
44	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethynylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate	
46	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(3-isobutylisoxazol-5-yl)methyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate	
48		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dimethylamino)sulfonyl]-5-[(dipropylamino)carbonyl]benzoate

50		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate hydrochloride
52		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(5-formyl-2-thienyl)benzyl]amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
54		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-iodobenzyl)amino]methyl}propyl 3-bromo-5-[(dipropylamino)carbonyl]benzoate
56		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-({[(1 <i>R</i> )-2-hydroxy-1-methylethyl]amino}sulfonyl)benzoate
58		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-isobutylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate

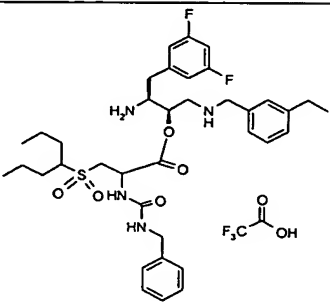
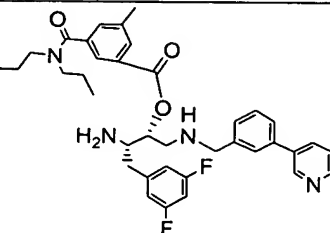
60		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate
62		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-{{(2 <i>R</i> )-2-(methoxymethyl)pyrrolidin-1-yl}carbonyl}-5-methylbenzoate hydrochloride
64		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-({[(1 <i>S</i> )-2-hydroxy-1-methylethyl]amino}sulfonyl)benzoate
66		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-{{butyl(propyl)amino}carbonyl}-5-methylbenzoate
68		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-[(dibutylamino)carbonyl]-5-methylbenzoate
70		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(3-hydroxyprop-1-yn-1-yl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
72		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-{{(2 <i>S</i> )-2-(hydroxymethyl)pyrrolidin-1-yl}sulfonyl}benzoate
74		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-{{butyl(ethyl)amino}carbonyl}-5-methylbenzoate
76		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethynylbenzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate
78		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-{{cyclohexyl(methyl)amino}carbonyl}-5-methylbenzoate
80		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-({[3-(cyclopropylamino)benzyl]amino}methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate
82		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(3-thienyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
84		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate
86		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-(piperazin-1-ylsulfonyl)benzoate dihydrochloride
88		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-

	iodophenyl)cyclopropyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
90	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3- <i>sec</i> -butylbenzyl)amino]methyl}-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
92	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(3-methylisoxazol-4-yl)benzoate hydrochloride
94	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-isobutylisoxazol-5-yl)cyclopropyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate
96	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate
98	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-[(dipropylamino)carbonyl]-6-methylisonicotinate
100	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-{{[(cyclopropylmethyl)(propyl)amino]carbonyl}-5-methylbenzoate
102	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate
104	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethynylphenyl)cyclopropyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate
106	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(aminosulfonyl)-5-[(dipropylamino)carbonyl]benzoate
108	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(3-[(1 <i>Z</i> )-prop-1-en-1-yl]benzyl)amino]methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
110	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(1 <i>H</i> -pyrazol-4-yl)benzoate hydrochloride
112	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)-1-methylethyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate
114	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
116	(1 <i>R</i> ,2 <i>S</i> )-1-{[(3-allylbenzyl)amino]methyl}-2-amino-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
118	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
120	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)-1-methylethyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate
122	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-

	ethylbenzyl)amino]methyl}propyl 3-[[ethyl(propyl)amino]carbonyl]-5-methylbenzoate	
124	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-([3-(cyclopropylamino)benzyl]amino)methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
126	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-ethynylphenyl)cyclopropyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate	
128	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-isobutylisoxazol-5-yl)cyclopropyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
130	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([3-(5-formyl-4-methyl-2-thienyl)benzyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
132	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(3-isopropylbenzyl)amino]methyl}propyl 5-[(dipropylamino)carbonyl]nicotinate	
134	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([3-[(methylsulfonyl)amino]benzyl]amino)methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
136	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(3-ethylbenzyl)amino]methyl}propyl 3-[(butylamino)carbonyl]-5-methylbenzoate	
138	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([3-(3-methylbutyl)benzyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
140	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(biphenyl-3-ylmethyl)amino]methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
142	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-ethynylphenyl)cyclopropyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
144	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-([2-(methylamino)ethyl]amino)sulfonyl)benzoate hydrochloride	
146	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-isobutylisoxazol-5-yl)cyclopropyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-ethynylbenzoate	
148		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(3-ethylbenzyl)amino]methyl}propyl 3-[(diallylamino)carbonyl]-5-methylbenzoate
150		(1 <i>R</i> ,2 <i>R</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-(2-isobutyl-1,3-thiazol-5-yl)cyclopropyl]amino)methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate



152		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)-1-methylethyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
154		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino]methyl}propyl 3-{{(2-hydroxyethyl)amino]sulfonyl}-5-[(propylamino)carbonyl]benzoate
156		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino]methyl}propyl 3-methyl-5-{{[methyl(propyl)amino]carbonyl}benzoate
158		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(phenylsulfonyl)-3-[(1-propylbutyl)sulfonyl]alaninate hydrochloride
160		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino]methyl}propyl 3-[(diethylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate

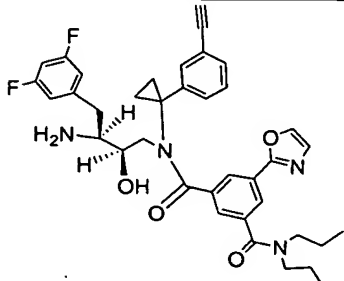
162		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(benzylamino)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate trifluoroacetate
164		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-pyridin-3-ylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
166		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl 5-[(dipropylamino)carbonyl]nicotinate 1-oxide
168		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-(3-formyl-2-furyl)benzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
170		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(1-methyl-1 <i>H</i> -imidazol-2-yl)benzoate
172		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl 3-[(diethylamino)carbonyl]-5-methylbenzoate
174		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-(ethylsulfinyl)benzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
176		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl 3-[[butyl(ethyl)amino]sulfonyl]propanoate
178		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-cyanobenzyl)amino]methyl}-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
180		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]propanoate hydrochloride
182		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl 3-[[isobutyl(methyl)amino]carbonyl]-5-methylbenzoate

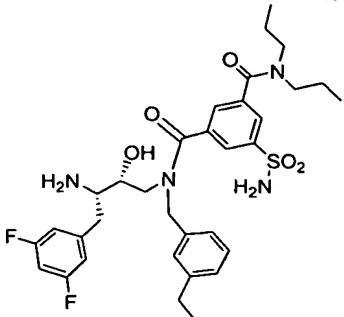
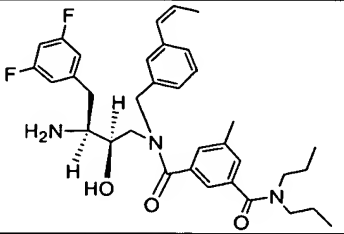
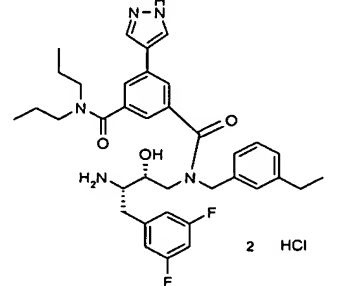
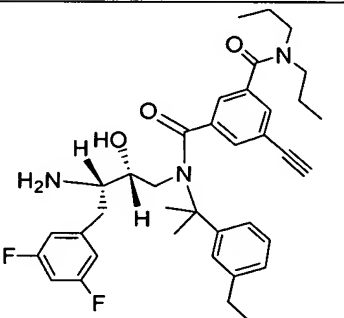
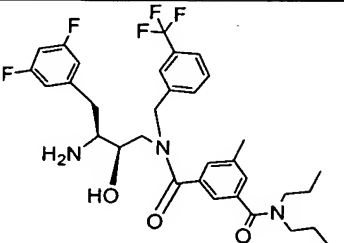
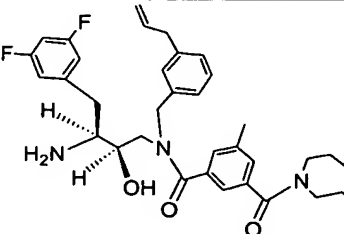
184		
186		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[3-pyridin-2-ylbenzyl]amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
188		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[3-iodobenzyl]amino}methyl}propyl 2-[(methylsulfonyl)amino]-1,3-oxazole-4-carboxylate
190		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[3-[methyl(methylsulfonyl)amino]benzyl]amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
192		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[3-(ethylbenzyl)amino]methyl}propyl <i>N</i> -(3-phenylpropanoyl)-3-[(1-propylbutyl)sulfonyl]alaninate trifluoroacetate
194	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(ethylsulfonyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
196	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[3-(ethylbenzyl)amino]methyl}propyl <i>N</i> -[(5-chloro-2-thienyl)sulfonyl]-3-[(1-propylbutyl)sulfonyl]alaninate hydrochloride	
198	(1 <i>R</i> ,2 <i>S</i> )-1-({[3-(5-acetyl-2-thienyl)benzyl]amino}methyl)-2-amino-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
200	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[3-(ethylbenzyl)amino]methyl}propyl 3-[( <i>sec</i> -butylamino)carbonyl]-5-	

	methylbenzoate
202	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-(1,3-oxazol-2-yl)benzoate hydrochloride
204	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-methyl-5-{{methyl(2-phenylethyl)amino}carbonyl}benzoate
206	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(3,5-dimethylisoxazol-4-yl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
208	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-methyl-5-{{methyl(prop-2-yn-1-yl)amino}carbonyl}benzoate
210	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-{{ethyl(methyl)amino}carbonyl}-5-methylbenzoate
212	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-{{[(dimethylamino)carbonyl]oxy}benzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
214	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-{{benzyl(methyl)amino}carbonyl}-5-methylbenzoate
216	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-{{ <i>sec</i> -butyl(propyl)amino}carbonyl}-5-methylbenzoate
218	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(4-methyl-2-thienyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
220	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(3-[(methoxycarbonyl)(methyl)amino]benzyl}amino)methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
222	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-({[3-(trifluoromethyl)benzyl]amino}methyl)-3-(2,3,5-trifluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
224	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-[(diisobutylamino)carbonyl]-5-methylbenzoate
226	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-methyl-5-{{methyl(2-pyridin-2-ylethyl)amino}carbonyl}benzoate
228	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-5-hydroxyphenyl)-1-{{(3-methoxybenzyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate hydrochloride
230	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-chloro-5-fluorophenyl)-1-{{(3-methoxybenzyl)amino}methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
232	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-iodobenzyl)amino}methyl}propyl 4-hydroxy-3-(pyrrolidin-1-ylcarbonyl)benzoate
234	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 5-oxo-D-prolyl-3-[(1-

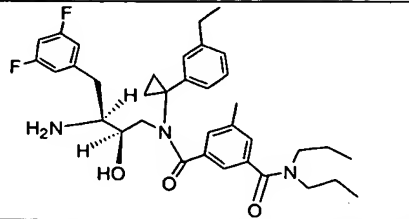
	propylbutyl)sulfonyl]alaninate hydrochloride	
236		
238		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-(3-pyridin-4-ylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
240		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-[(dimethylamino)sulfonyl]benzyl}amino)methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
242	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[6-methoxy-1,2,3,4-tetrahydronaphthalen-1-yl]amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
244	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl]amino]methyl}propyl <i>N</i> -(phenylacetyl)-3-[(1-propylbutyl)sulfonyl]alaninate	
246	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl]amino]methyl}propyl 3-(azepan-1-ylcarbonyl)-5-methylbenzoate	
248	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-[(methoxycarbonyl)amino]benzyl}amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
250	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl]amino]methyl}propyl 5-oxo-L-prolyl-3-[(1-propylbutyl)sulfonyl]alaninate hydrochloride	
252	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl]amino]methyl}propyl 3-[(isobutylamino)carbonyl]-5-methylbenzoate	
254	4-[[[(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl]amino]methyl}propyl]oxy]-4-oxo-3-[[[(1-propylbutyl)sulfonyl]methyl]butanoic acid trifluoroacetate	
256	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl]amino]methyl}propyl 3-[methyl(methylsulfonyl)amino]benzoate	
25	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-[[2-(2-hydroxyethyl)amino]sulfonyl]- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
27	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-ethynyl- <i>N</i> -[(2-	

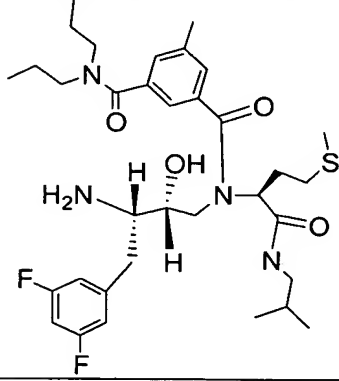
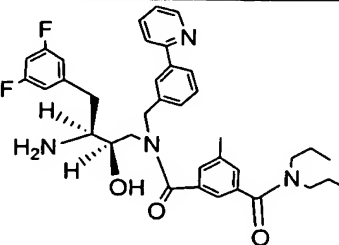
	isobutyl-1,3-thiazol-5-yl)methyl]- <i>N',N'</i> -dipropylisophthalamide
29	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-ethynyl- <i>N</i> -(3-isopropylbenzyl)- <i>N',N'</i> -dipropylisophthalamide
31	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-isopropylbenzyl)-5-(1,3-oxazol-2-yl)- <i>N',N'</i> -dipropylisophthalamide
33	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-[(2-hydroxy-1,1-dimethylethyl)amino]sulfonyl)- <i>N',N'</i> -dipropylisophthalamide
35	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-(4-methyl-1,3-oxazol-2-yl)- <i>N',N'</i> -dipropylisophthalamide
37	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(2-isobutyl-1,3-thiazol-5-yl)methyl]-5-(1,3-oxazol-2-yl)- <i>N',N'</i> -dipropylisophthalamide
39	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-[(3-hydroxypropyl)amino]sulfonyl)- <i>N',N'</i> -dipropylisophthalamide hydrochloride
41	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N',N'</i> -dipropyl- <i>N</i> -(3-propylbenzyl)isophthalamide
43	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -butyl- <i>N</i> -(3-ethylbenzyl)- <i>N',5</i> -dimethylisophthalamide
45	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-ethynyl- <i>N</i> -(3-ethynylbenzyl)- <i>N',N'</i> -dipropylisophthalamide
47	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-ethynyl- <i>N</i> -[(3-isobutylisoxazol-5-yl)methyl]- <i>N',N'</i> -dipropylisophthalamide
49	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-[(dimethylamino)sulfonyl]- <i>N</i> -(3-ethylbenzyl)- <i>N',N'</i> -dipropylisophthalamide
51	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-(1,3-oxazol-2-yl)- <i>N',N'</i> -dipropylisophthalamide hydrochloride
53	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(5-formyl-2-thienyl)benzyl]-5-methyl- <i>N',N'</i> -dipropylisophthalamide
55	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-bromo- <i>N</i> -(3-iodobenzyl)- <i>N',N'</i> -dipropylisophthalamide
57	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-[(1 <i>R</i> )-2-hydroxy-1-methylethylamino]sulfonyl)- <i>N',N'</i> -dipropylisophthalamide
59	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-isobutylbenzyl)-5-methyl- <i>N',N'</i> -dipropylisophthalamide
61	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-ethynyl- <i>N',N'</i> -dipropyl- <i>N</i> -[3-(trifluoromethyl)benzyl]isophthalamide
63	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[(2 <i>R</i> )-2-(methoxymethyl)pyrrolidin-1-yl]carbonyl]-5-methylbenzamide hydrochloride
65	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-[(1 <i>S</i> )-2-hydroxy-1-methylethylamino]sulfonyl)- <i>N',N'</i> -dipropylisophthalamide
67	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -butyl- <i>N</i> -(3-ethylbenzyl)-5-methyl- <i>N'</i> -propylisophthalamide
69	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N',N'</i> -dibutyl- <i>N</i> -(3-ethylbenzyl)-5-methylisophthalamide

71	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(3-hydroxyprop-1-yn-1-yl)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
73	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-[[ <i>(2S)</i> -2-(hydroxymethyl)pyrrolidin-1-yl]sulfonyl]- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
75	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -butyl- <i>N'</i> -ethyl- <i>N</i> -(3-ethylbenzyl)-5-methylisophthalamide	
77	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethynylbenzyl)-5-(1,3-oxazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
79	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -cyclohexyl- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> ,5-dimethylisophthalamide	
81	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(cyclopropylamino)benzyl]-5-ethynyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
83	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropyl- <i>N</i> -[3-(3-thienyl)benzyl]isophthalamide	
85	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(1,3-oxazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropyl- <i>N</i> -[3-(trifluoromethyl)benzyl]isophthalamide	
87	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-(piperazin-1-ylsulfonyl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide dihydrochloride	
89	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-iodophenyl)cyclopropyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
91	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3- <i>sec</i> -butylbenzyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
93	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-(3-methylisoxazol-4-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide hydrochloride	
95	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-isobutylisoxazol-5-yl)cyclopropyl]-5-(1,3-oxazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
97	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-ethylphenyl)cyclopropyl]-5-(1,3-oxazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
99	<i>N</i> <sup>4</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>4</sup> -(3-ethylbenzyl)-6-methyl- <i>N</i> <sup>2</sup> , <i>N</i> <sup>2</sup> -dipropylpyridine-2,4-dicarboxamide	
101	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -(cyclopropylmethyl)- <i>N</i> -(3-ethylbenzyl)-5-methyl- <i>N'</i> -propylisophthalamide	
103	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-5-(1,3-oxazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
105		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-ethynylphenyl)cyclopropyl]-5-(1,3-oxazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide

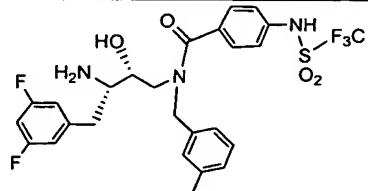
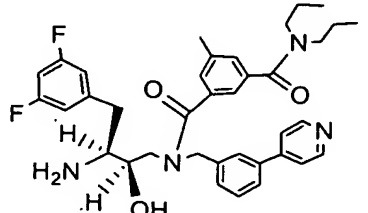
107		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(aminosulfonyl)- <i>N</i> -(3-ethylbenzyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
109		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -{3-[(1 <i>Z</i> )-prop-1-en-1-yl]benzyl}- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
111		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> ', <i>N</i> '-dipropyl-5-(1 <i>H</i> -pyrazol-4-yl)isophthalamide dihydrochloride
113		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-ethylphenyl)-1-methylethyl]-5-ethynyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
115		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropyl- <i>N</i> -[3-(trifluoromethyl)benzyl]isophthalamide
117		<i>N</i> -(3-allylbenzyl)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide



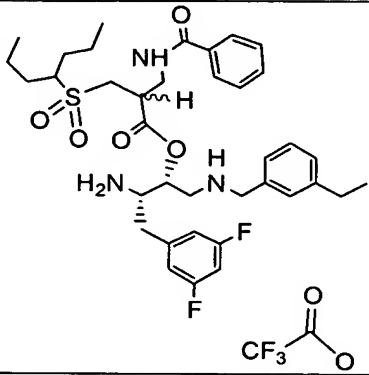
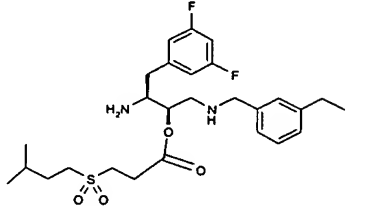
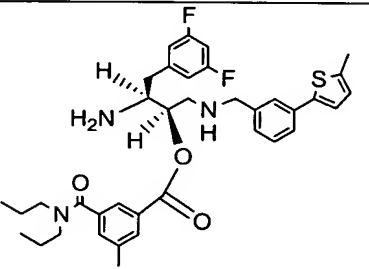
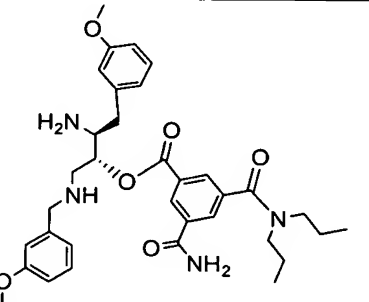
119		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-ethylphenyl)cyclopropyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
121		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-ethylphenyl)-1-methylethyl]-5-(1,3-oxazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
123		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -ethyl- <i>N</i> -(3-ethylbenzyl)-5-methyl- <i>N'</i> -propylisophthalamide
125		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(cyclopropylamino)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
127		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-ethynyl- <i>N</i> -[1-(3-ethynylphenyl)cyclopropyl]- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
129		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-isobutylisoxazol-5-yl)cyclopropyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
131		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(5-formyl-4-methyl-2-thienyl)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
133		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-isopropylbenzyl)- <i>N'</i> , <i>N'</i> -dipropylpyridine-3,5-dicarboxamide
135		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -{3-[(methylsulfonyl)amino]benzyl}- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
137		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -butyl- <i>N</i> -(3-ethylbenzyl)-5-methylisophthalamide
139		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -[3-(3-methylbutyl)benzyl]- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
141		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(biphenyl-3-ylmethyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
143		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-ethynylphenyl)cyclopropyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
145		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-({[2-(methylamino)ethyl]amino} sulfonyl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide hydrochloride
147		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-ethynyl- <i>N</i> -[1-(3-isobutylisoxazol-5-yl)cyclopropyl]- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
149		<i>N,N</i> -diallyl- <i>N'</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -(3-ethylbenzyl)-5-methylisophthalamide
151		<i>N</i> -[(2 <i>R</i> ,3 <i>R</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(2-isobutyl-1,3-thiazol-5-yl)cyclopropyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
153		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(3-ethylphenyl)-1-methylethyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
155		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-{{[2-(hydroxyethyl)amino]sulfonyl}- <i>N'</i> -propylisophthalamide
157		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> ,5-dimethyl- <i>N'</i> -propylisophthalamide
159		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(phenylsulfonyl)-3-[(1-propylbutyl)sulfonyl]alaninamide

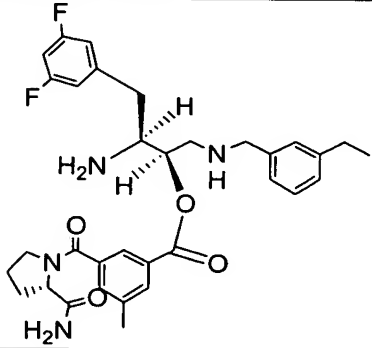
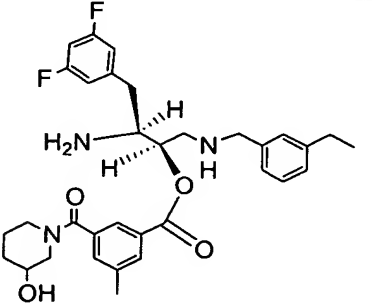
	hydrochloride	
161	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> , <i>N'</i> -diethyl- <i>N</i> -(3-ethylbenzyl)-5-(1,3-oxazol-2-yl)isophthalamide	
163	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>2</sup> -[(benzylamino)carbonyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide trifluoroacetate (salt)	
165	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropyl- <i>N</i> -(3-pyridin-3-ylbenzyl)isophthalamide	
167	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> , <i>N'</i> -dipropylpyridine-3,5-dicarboxamide 1-oxide	
169	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -ethyl- <i>N</i> -[3-(3-formyl-2-furyl)benzyl]-5-methyl- <i>N'</i> -propylisophthalamide	
171	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-(1-methyl-1 <i>H</i> -imidazol-2-yl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
173	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> , <i>N'</i> -diethyl- <i>N</i> -(3-ethylbenzyl)-5-methylisophthalamide	
175	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(ethylsulfinyl)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
177	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-[[butyl(ethyl)amino]sulfonyl]- <i>N</i> -(3-ethylbenzyl)propanamide	
179	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-cyanobenzyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
181	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]propanamide hydrochloride	
183	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> -isobutyl- <i>N'</i> ,5-dimethylisophthalamide	
185		
187		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropyl- <i>N</i> -(3-pyridin-2-ylbenzyl)isophthalamide

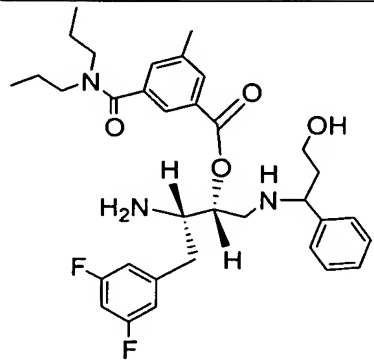
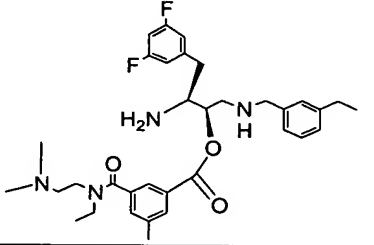
189		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-iodobenzyl)-2-[(methylsulfonyl)amino]-1,3-oxazole-4-carboxamide
191		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -{3-[methyl(methylsulfonyl)amino]benzyl}- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
193		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(3-phenylpropanoyl)-3-[(1-propylbutyl)sulfonyl]alaninamide trifluoroacetate (salt)
195		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(ethylsulfonyl)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
197		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>2</sup> -[(5-chloro-2-thienyl)sulfonyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide hydrochloride
199	<i>N</i> -[3-(5-acetyl-2-thienyl)benzyl]- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
201	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -( <i>sec</i> -butyl)- <i>N</i> -(3-ethylbenzyl)-5-methylisophthalamide	
203	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(1,3-oxazol-2-yl)benzamide hydrochloride	

205	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> ,5-dimethyl- <i>N'</i> -(2-phenylethyl)isophthalamide	
207	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(3,5-dimethylisoxazol-4-yl)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
209	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> ,5-dimethyl- <i>N'</i> -prop-2-yn-1-ylisophthalamide	
211	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -ethyl- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> ,5-dimethylisophthalamide	
213	3-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]{3-[(dipropylamino)carbonyl]-5-methylbenzoyl}amino)methyl]phenyl dimethylcarbamate	
215	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -benzyl- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> ,5-dimethylisophthalamide	
217	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -( <i>sec</i> -butyl)- <i>N</i> -(3-ethylbenzyl)-5-methyl- <i>N'</i> -propylisophthalamide	
219	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -[3-(4-methyl-2-thienyl)benzyl]- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
221	methyl {3-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]{3-[(dipropylamino)carbonyl]-5-methylbenzoyl}amino)methyl]phenyl} methylcarbamate	
223	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2,3,5-trifluorophenyl)butyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropyl- <i>N</i> -[3-(trifluoromethyl)benzyl]isophthalamide	
225	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> , <i>N'</i> -diisobutyl-5-methylisophthalamide	
227	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> ,5-dimethyl- <i>N'</i> -(2-pyridin-2-ylethyl)isophthalamide	
229	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-5-hydroxyphenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide hydrochloride	
231	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
233	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-hydroxy- <i>N</i> -(3-iodobenzyl)-3-(pyrrolidin-1-ylcarbonyl)benzamide	
235	5-oxo-D-prolyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide hydrochloride	
237		
239		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropyl- <i>N</i> -(3-pyridin-4-ylbenzyl)isophthalamide

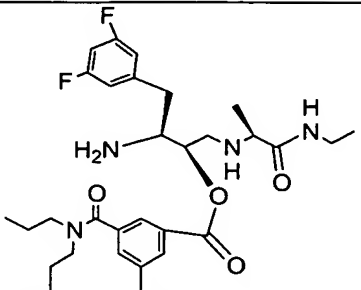
241		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -{3-[(dimethylamino)sulfonyl]benzyl}-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
243		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(6-methoxy-1,2,3,4-tetrahydronaphthalen-1-yl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
245		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(phenylacetyl)-3-[(1-propylbutyl)sulfonyl]alaninamide
247		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(azepan-1-ylcarbonyl)- <i>N</i> -(3-ethylbenzyl)-5-methylbenzamide
249		methyl {3-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl] {3-[(dipropylamino)carbonyl]-5-methylbenzoyl} amino)methyl]phenyl} carbamate
251		5-oxo-L-prolyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide hydrochloride
253		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> -isobutyl-5-methylisophthalamide
255		4-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]-4-oxo-3-[[[(1-propylbutyl)sulfonyl]methyl]butanoic acid trifluoroacetate (salt)
257		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[methyl(methylsulfonyl)amino]benzamide
258		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-[[ethyl(isopropyl)amino]carbonyl]-5-methylbenzoate
260		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-(2-thienyl)propyl 3-[[[(dipropylamino)carbonyl]-5-methylbenzoate
262		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-[[[(2-hydroxyethyl)(propyl)amino]sulfonyl]propanoate
264		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-[[[isopropyl(methyl)amino]carbonyl]-5-methylbenzoate
266		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 2-[(methylsulfonyl)amino]-1,3-thiazole-4-carboxylate
268		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-[[allyl(cyclopentyl)amino]carbonyl]-5-methylbenzoate

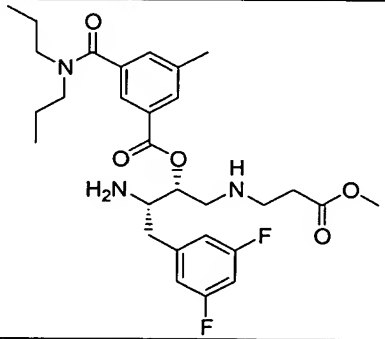
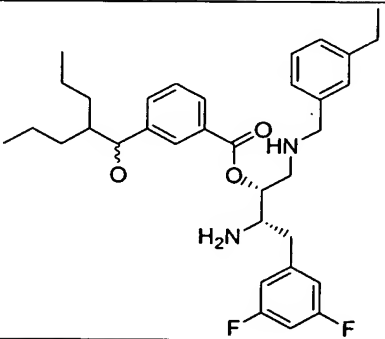
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272		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl}propyl 3-[(3-methylbutyl)sulfonyl]propanoate
274		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ({[ (5-methyl-2-thienyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
276		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1- {[ (3-methoxybenzyl)amino]methyl} -3-(3-methoxyphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
278		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (1-methylhexyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
280		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1- ({[ 1-(aminocarbonyl)cyclohexyl]amino}methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
282		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (2 <i>E</i> )-hex-2-en-1-ylamino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
284		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-fluorophenyl)-1- {[ (3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
286		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl}propyl 3-hydroxyisoxazole-5-carboxylate
288		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- [{ (3-[(1 <i>E</i> )-hex-1-en-1-yl]benzyl}amino]methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate

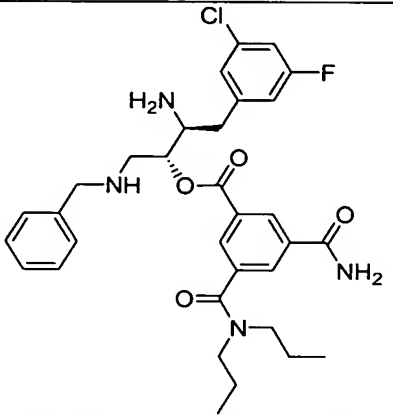
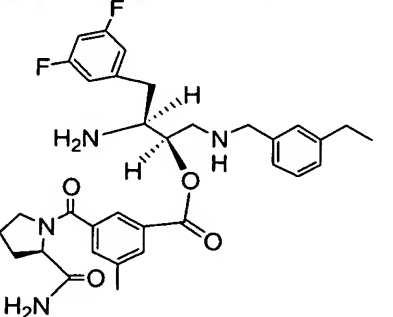
290	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-[(isopropylamino)carbonyl]-5-methylbenzoate	
292	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-(2-thienyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
294	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-iodobenzyl)amino]methyl}propyl [3-(2-amino-2-oxoethoxy)phenyl]acetate	
296	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-bromophenyl)-1-{{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
298	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(2-ethylhexyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
300	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(6-methoxypyridin-3-yl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
302	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(2,4-dimethoxypyrimidin-5-yl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
304	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-(2-ethylbutanoyl)benzoate	
306	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-[(4-hydroxypiperidin-1-yl)carbonyl]-5-methylbenzoate	
308	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-bromophenyl)-1-{{[(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
310	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-iodobenzyl)amino]methyl}propyl 4-[2'-(aminocarbonyl)biphenyl-4-yl]-4-oxobutanoate	
312		
314		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-[(3-hydroxypiperidin-1-yl)carbonyl]-5-methylbenzoate

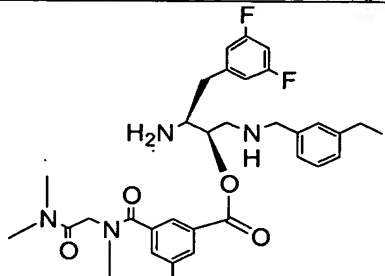
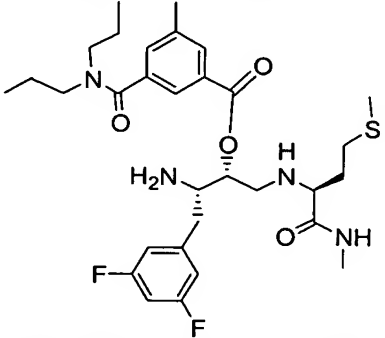
316		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-hydroxy-1-phenylpropyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
318		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[[[2-(dimethylamino)ethyl](ethyl)amino]carbonyl]-5-methylbenzoate
320		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-methyl-4 <i>H</i> ,6 <i>H</i> -pyrrolo[1,2- <i>a</i> ][4,1]benzoxazepine-4-carboxylate
322		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (5-acetyl-2-thienyl)acetate
324		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-dichlorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
326		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(diisopropylamino)carbonyl]-5-methylbenzoate
328		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(methylsulfonyl)amino]benzoate
330		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-chlorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
332		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-iodobenzyl)amino]methyl}propyl [4-(2-oxopyrrolidin-1-yl)phenyl]acetate
334		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-chloro-5-fluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
336		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-chloro-5-fluorophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate

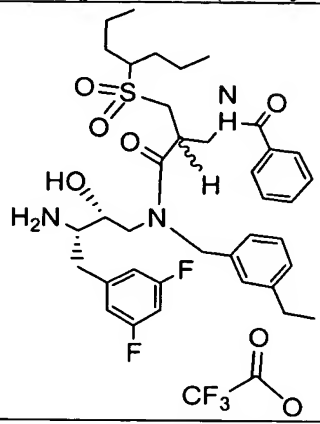


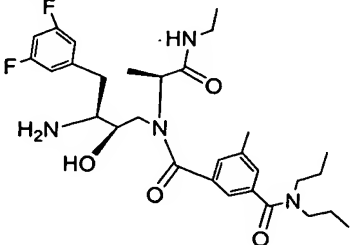
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340	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl} propyl 3-{[(1-methyl-1 <i>H</i> -imidazol-4-yl)sulfonyl]amino} benzoate trihydrochloride	
342	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(pentylamino)methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
344	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-fluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl} propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
346	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-chloro-5-fluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
348	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl} propyl 3-[(cyclohexyl(ethyl)amino)carbonyl]-5-methylbenzoate	
350	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[2-({[(2,4-difluorophenyl)amino]carbonyl}oxy)ethyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
352	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl} propyl 3-{[(2 <i>S</i> )-2-(methoxymethyl)pyrrolidin-1-yl]carbonyl}-5-methylbenzoate hydrochloride	
354	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-4-methylphenyl)-1-{[(3-methoxybenzyl)amino]methyl} propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
356	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-bromophenyl)-1-{[(3-methylbutyl)amino]methyl} propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
358	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl} propyl 2,8-dimethylquinoline-3-carboxylate	
360	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(6-hydroxyhexyl)amino]methyl} propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
362	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(2 <i>R</i> )-2-hydroxypropyl]amino} methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
364	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 3-[(1-propylbutyl)sulfonyl]propanoate	
366	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl} propyl 3-{[(2-hydroxy-1,1-dimethylethyl)amino]sulfonyl} benzoate	
368	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(4-phenylbutyl)amino]methyl} propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	

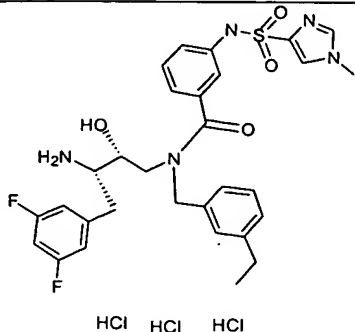
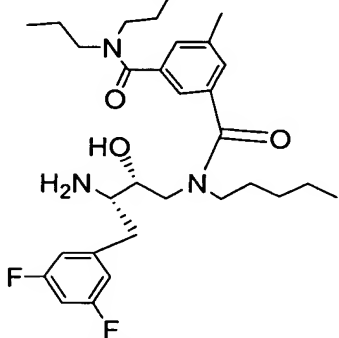
370	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-iodobenzyl)amino]methyl}propyl 7-(1 <i>H</i> -imidazol-1-yl)-5,6-dihydronaphthalene-2-carboxylate	
372	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(acetlamino)-4-methylbenzoate	
374	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-({[2-(aminosulfonyl)ethyl]amino}methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
376	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[2-(ethylthio)ethyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
378	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-cyclohexyl-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
380	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[benzyl(cyanomethyl)amino]methyl}-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
382	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[2-(hydroxypropyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
384	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-butoxypropyl)amino]methyl}-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
386	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-{[2-(2-hydroxyethyl)piperidin-1-yl]carbonyl}-5-methylbenzoate	
388		
390		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(1-hydroxy-2-propylpentyl)benzoate

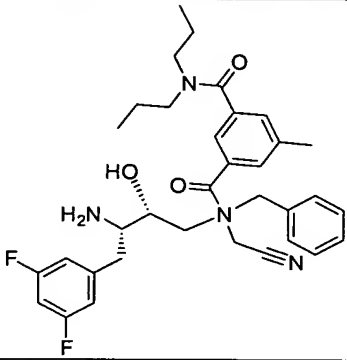
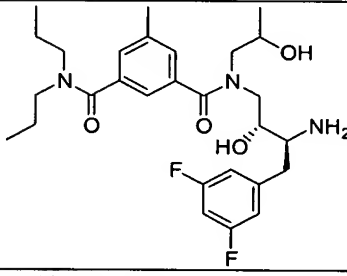
392		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-chloro-5-fluorophenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
394		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[(methylsulfonyl)amino]butanoate trifluoroacetate
396		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-({[3-(1-benzothien-2-yl)benzyl]amino}methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
398		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(benzyloxy)isoxazole-5-carboxylate
400		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(cyclopropylmethyl)amino]methyl}-3-(3,5-difluorophenyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate trifluoroacetate
402		
404		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-(1 <i>H</i> -pyrazol-1-yl)pentanoate
406		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 1-(2-furylmethyl)-5-oxopyrrolidine-3-carboxylate
408		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-ethylhexanoate hydrochloride
410		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(5-hydroxypentyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
412		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]piperidine-1-carboxylate
414		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(diethylamino)carbonyl]piperidine-1-carboxylate
416		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(pentafluorophenyl)-1-({[3-

	(trifluoromethyl)benzyl]amino} methyl)propyl 3-bromo-5- [(dipropylamino)carbonyl]benzoate
418	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl} propyl 4-[(methylsulfonyl)amino]benzoate
420	
422	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-bromophenyl)-1-{[(3-methoxybenzyl)amino]methyl} propyl 3-[(dipropylamino)sulfonyl]propanoate
424	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(2-thienyl)propyl 3-[(dipropylamino)sulfonyl]propanoate
426	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethoxypropyl)amino]methyl} propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
428	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(2-thienyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
430	
432	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl} propyl 2-hydroxy-4-(phenylsulfonyl)butanoate hydrochloride
434	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-dichlorophenyl)-1-{[(3-methylbutyl)amino]methyl} propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
436	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-[3-(trifluoromethoxy)phenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
259	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -ethyl- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> -isopropyl-5-methylisophthalamide
261	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
263	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-{[(2-hydroxyethyl)(propyl)amino]sulfonyl}propanamide
265	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> -isopropyl- <i>N'</i> ,5-dimethylisophthalamide

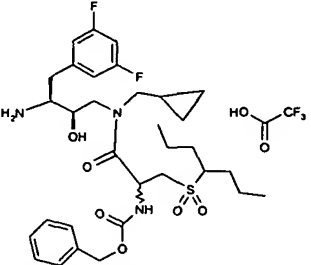
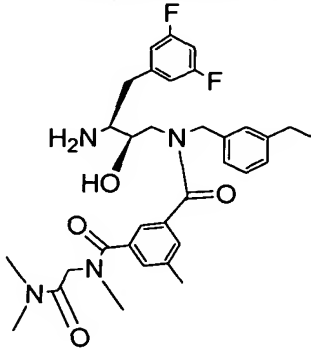
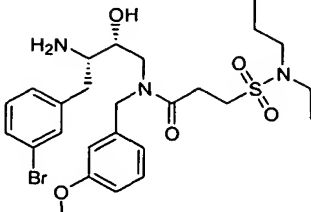
267	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[(methylsulfonyl)amino]-1,3-thiazole-4-carboxamide	
269	<i>N</i> -allyl- <i>N'</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -cyclopentyl- <i>N'</i> -(3-ethylbenzyl)-5-methylisophthalamide	
271		
273	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[(3-methylbutyl)sulfonyl]propanamide	
275	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -[3-(5-methyl-2-thienyl)benzyl]- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
277	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methoxyphenyl)butyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
279	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(1-methylhexyl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
281	<i>N</i> -[1-(aminocarbonyl)cyclohexyl]- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
283	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(2 <i>E</i> )-hex-2-en-1-yl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
285	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
287	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-hydroxyisoxazole-5-carboxamide	
289	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -{3-[(1 <i>E</i> )-hex-1-en-1-yl]benzyl}-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
291	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> -isopropyl-5-methylisophthalamide	
293	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
295	2-(3-{2-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-iodobenzyl)amino]-2-oxoethyl}phenoxy)acetamide	
297	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
299	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(2-ethylhexyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
301	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(6-methoxypyridin-3-yl)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
303	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(2,4-dimethoxypyrimidin-5-yl)benzyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	

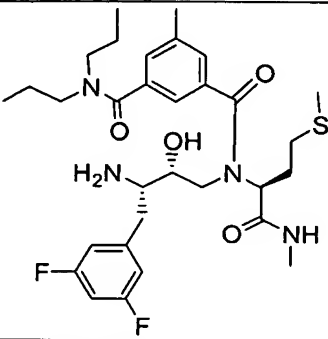
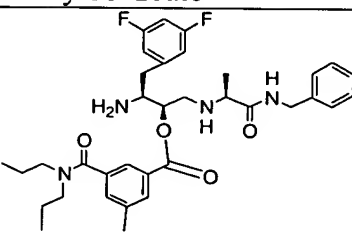
305	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(2-ethylbutanoyl)benzamide	
307	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[(4-hydroxypiperidin-1-yl)carbonyl]-5-methylbenzamide	
309	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
311	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-iodobenzyl)amino]methyl}propyl 4-[2'-(aminocarbonyl)biphenyl-4-yl]-4-oxobutanoate	
313	1-(3-{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-5-methylbenzoyl)-L-prolinamide	
315	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[(3-hydroxypiperidin-1-yl)carbonyl]-5-methylbenzamide	
317	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-hydroxy-1-phenylpropyl)-5-methyl- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylisophthalamide	
319	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -[2-(dimethylamino)ethyl]- <i>N</i> <sup>1</sup> -ethyl- <i>N</i> -(3-ethylbenzyl)-5-methylisophthalamide	
321	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-methyl-4 <i>H</i> ,6 <i>H</i> -pyrrolo[1,2- <i>a</i> ][4,1]benzoxazepine-4-carboxamide	
323	2-(5-acetyl-2-thienyl)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)acetamide	
325	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-dichlorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
327	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -diisopropyl-5-methylisophthalamide	
329	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[(methylsulfonyl)amino]benzamide	
331	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-chlorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
333	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-iodobenzyl)-2-[4-(2-oxopyrrolidin-1-yl)phenyl]acetamide	
335	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
337	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
339		

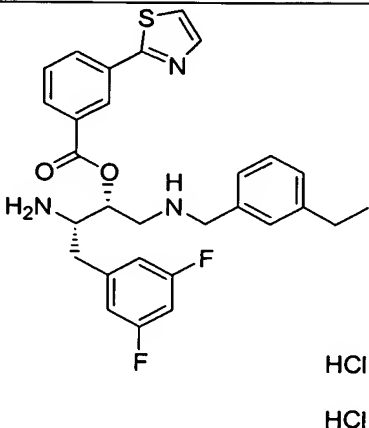
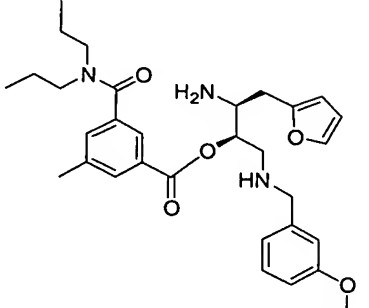
341	 HCl HCl HCl	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[[[(1-methyl-1 <i>H</i> -imidazol-4-yl)sulfonyl]amino}benzamide trihydrochloride
343		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N'</i> -pentyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
345	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
347	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
349	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -cyclohexyl- <i>N'</i> -ethyl- <i>N</i> -(3-ethylbenzyl)-5-methylisophthalamide	
351	2-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]{3-[(dipropylamino)carbonyl]-5-methylbenzoyl}amino]ethyl (2,4-difluorophenyl)carbamate	
353	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[[[(2 <i>S</i> )-2-(methoxymethyl)pyrrolidin-1-yl]carbonyl]-5-methylbenzamide hydrochloride	
355	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methylphenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
357	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
359	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2,8-dimethylquinoline-3-carboxamide	
361	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(6-hydroxyhexyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
363	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(2 <i>R</i> )-2-hydroxypropyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
365	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-3-[(1-propylbutyl)sulfonyl]propanamide	
367	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[[[(2-hydroxy-1,1-dimethylethyl)amino]sulfonyl}benzamide	
369	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(4-phenylbutyl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	

371	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-7-(1 <i>H</i> -imidazol-1-yl)- <i>N</i> -(3-iodobenzyl)-5,6-dihydronaphthalene-2-carboxamide	
373	3-(acetylamino)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-methylbenzamide	
375	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[2-(aminosulfonyl)ethyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
377	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[2-(ethylthio)ethyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
379	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-cyclohexyl-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
381		
383		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(2-hydroxypropyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
385	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-butoxypropyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
387	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-{[2-(2-hydroxyethyl)piperidin-1-yl]carbonyl}-5-methylbenzamide	
389	methyl <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -{3-[(dipropylamino)carbonyl]-5-methylbenzoyl}- $\beta$ -alaninate	
391	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(1-hydroxy-2-propylpentyl)benzamide	
393	<i>N</i> '-[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]- <i>N</i> '-benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
395	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-[(methylsulfonyl)amino]butanamide trifluoroacetate (salt)	
397	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(1-benzothien-2-yl)benzyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
399	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(benzyloxy)- <i>N</i> -(3-ethylbenzyl)isoxazole-5-carboxamide	



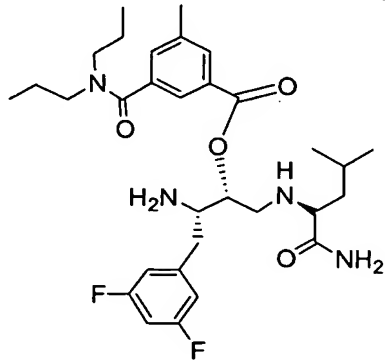
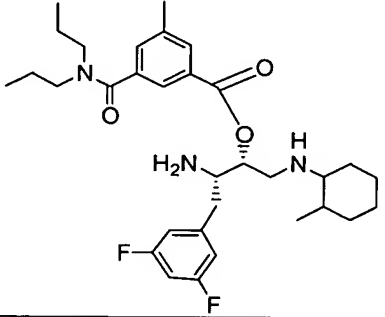
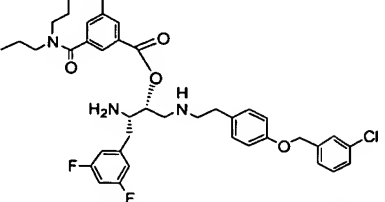
401		
403	1-(3-{[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-5-methylbenzoyl)-D-prolinamide	
405	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-(1 <i>H</i> -pyrazol-1-yl)pentanamide	
407	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-1-(2-furylmethyl)-5-oxopyrrolidine-3-carboxamide	
409	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-ethyl- <i>N</i> -(3-methoxybenzyl)hexanamide hydrochloride	
411	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(5-hydroxypentyl)-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
413	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylpiperidine-1,3-dicarboxamide	
415	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -diethyl- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)piperidine-1,3-dicarboxamide	
417	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(pentafluorophenyl)butyl]-5-bromo- <i>N</i> , <i>N</i> '-dipropyl- <i>N</i> -[3-(trifluoromethyl)benzyl]isophthalamide	
419	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-[(methylsulfonyl)amino]benzamide	
421		
423		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide
425	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
427	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethoxypropyl)-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
429	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> , <i>N</i> '-	

	dipropylisophthalamide	
431		
433	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-(phenylsulfonyl)butanamide hydrochloride	
435	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-dichlorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
437	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethoxy)phenyl]butyl}- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
438	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3,3-dimethylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
440	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-bromophenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
442	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-chloro-5-fluorophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
444		
446	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(1,3-diphenylpropyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
448	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(1 <i>S</i> )-1-(hydroxymethyl)propyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]benzoate	
450	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(3 <i>S</i> )-2-oxazepan-3-yl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
452	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-(cyclohexylamino)-5-oxopentanoate	
454	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(3-methylphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
456	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(2-propylpentyl)sulfonyl]-β-alaninate trifluoroacetate	

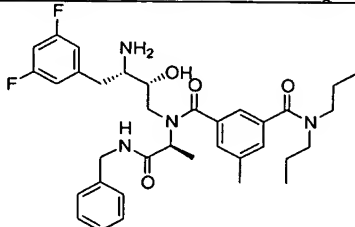
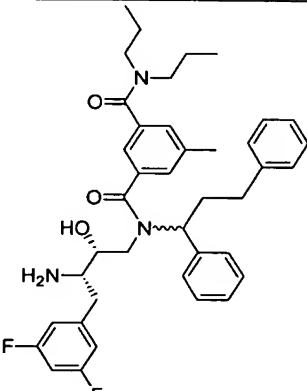
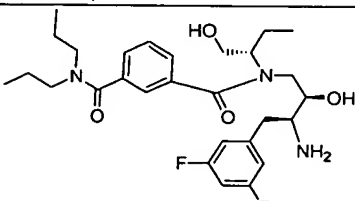
458	 HCl HCl	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-(1,3-thiazol-2-yl)benzoate dihydrochloride
460		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(2-furyl)-1-[[[(3-methoxybenzyl)amino]methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
462	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-methyl(phenyl)amino]propyl)amino]methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
464	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-(4-methylphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
466	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 5-oxo-1-(2-thienylmethyl)pyrrolidine-3-carboxylate	
468	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 4-[(butylthio)methyl]-5-methyl-2-furoate	
470	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-[[[(2-hydroxyethyl)amino]sulfonyl]benzoate	
472	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl <i>N</i> -[3-(trifluoromethyl)benzoyl]glycinate	
474	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-methylcyclohexyl)amino]methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
476	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 4-(2-oxo-1,3-oxazolidin-3-yl)benzoate	
478	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 4-(1 <i>H</i> -pyrrol-1-yl)benzoate	
480	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(6-methoxy-1,2,3,4-tetrahydronaphthalen-1-yl)amino]methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
482	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-	

	ethylbenzyl)amino]methyl}propyl 1,3,4,5-tetrahydrothiopyrano[4,3- <i>b</i> ]indole-8-carboxylate
484	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-oxo-4-{[2-(trifluoromethyl)phenyl]amino}butanoate
486	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-bromophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
488	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4,5-dimethyl-2-(1 <i>H</i> -pyrrol-1-yl)thiophene-3-carboxylate
490	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(2,3-dihydroxypropyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
492	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(2 <i>S</i> )-2-hydroxypropyl]amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
494	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(1 <i>R</i> )-1-methylpropyl]amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
496	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-chloro-4-(methylsulfonyl)benzoate
498	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(2-hydroxyethyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
500	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(3-methoxyphenyl)propyl 3-[(dipropylamino)sulfonyl]propanoate
502	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-{methyl[(trifluoromethyl)sulfonyl]amino}benzoate hydrochloride
504	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-hydroxy-6-(1-hydroxy-2,2-dimethylpropyl)pyridine-2-carboxylate
506	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(1,3-dicyclohexylpropyl)amino]methyl}-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
508	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2,2'-bithiophene-5-carboxylate
510	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(1 <i>H</i> -imidazol-1-yl)butanoate
512	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2,3-dihydroxy-4-[(4-methoxyphenyl)amino]-4-oxobutanoate
514	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-hydroxyphenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
516	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-[3-(trifluoromethyl)phenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
518	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(2-thienyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate

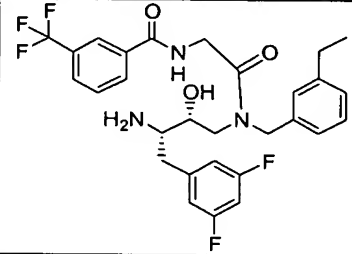
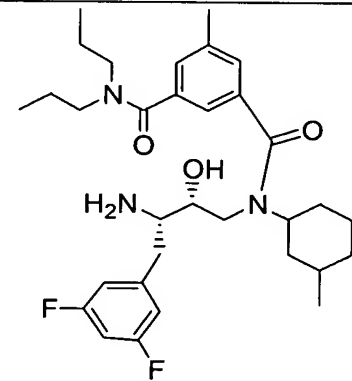
520	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-({[2-(aminocarbonyl)-1 <i>H</i> -indol-6-yl]amino}methyl)-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
522	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-bromophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
524	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -[4-(trifluoromethyl)benzoyl]glycinate
526	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 2-(1-oxo-1,3-dihydro-2 <i>H</i> -isoindol-2-yl)butanoate
528	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -(3,4-dichlorobenzoyl)glycinate
530	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-chloro-4-(methylsulfonyl)thiophene-2-carboxylate
532	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(1-ethylpropyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
534	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[( <i>5R</i> )-3-ethyl-2-oxo-1,3-oxazolidin-5-yl]methyl}amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
536	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 5-methyl-7-(trifluoromethyl)pyrazolo[1,5- <i>a</i> ]pyrimidine-2-carboxylate
538	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{(3-methoxybenzyl)amino}methyl}-3-phenylpropyl <i>N</i> -[(methylthio)acetyl]-3-[(1-propylbutyl)sulfonyl]alaninate hydrochloride
540	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(2,3-dimethylcyclohexyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
542	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 4,5-dimethoxy-1-benzothiophene-2-carboxylate
544	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-fluoro-5-(trifluoromethyl)phenyl]-1-{{(3-methylbutyl)amino}methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
546	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[( <i>5S</i> )-3-ethyl-2-oxo-1,3-oxazolidin-5-yl]methyl}amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
548	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(1,3-benzodioxol-5-yl)-1-{{(3-methoxybenzyl)amino}methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
550	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 4-(3,5-dioxo-1,2,4-triazolidin-4-yl)benzoate
552	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{(3-methoxybenzyl)amino}methyl}-3-phenylpropyl 2-hydroxy-3-[(3-methoxyphenyl)sulfonyl]propanoate hydrochloride

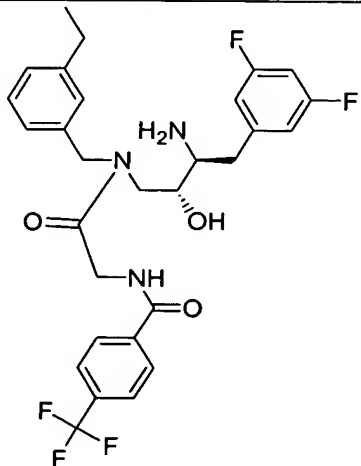
554		
556		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(2-methylcyclohexyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
558		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{(2-{4-[(3-chlorobenzyl)oxy]phenyl}ethyl)amino}methyl}-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
560	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 2-hydroxy-4-oxo-4-(3-thienyl)butanoate	
562	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)-5-fluorophenyl]-1-{{(3-methoxybenzyl)amino}methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
564	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 2-hydroxy-4-oxo-4-[3-(trifluoromethyl)phenyl]butanoate	
566	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{(3-methylbutyl)amino}methyl}-3-[3-(trifluoromethoxy)phenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
568	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(hydroxymethyl)-3-(methylthio)propyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
570	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 2-(1 <i>H</i> -1,2,3-benzotriazol-1-yl)hexanoate	
572	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-4-methylphenyl)-1-{{(3-methylbutyl)amino}methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
574	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)-2-{{(1-propylbutyl)sulfonyl}methyl}propanoate	

576	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 4-[[{(trifluoromethyl)sulfonyl]amino}butanoate trifluoroacetate
578	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl (5-methyl-1,3-dioxo-1,3-dihydro-2 <i>H</i> -isoindol-2-yl)acetate
580	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-hydroxypropyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
582	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(1-(hydroxymethyl)propyl)amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
584	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3,5-dichlorophenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
586	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[{(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 3-[[{(2-hydroxyethyl)(propyl)amino]sulfonyl}propanoate hydrochloride
588	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 5-(benzylthio)nicotinate
590	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 1 <i>H</i> -pyrazole-5-carboxylate
592	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 6-chloro-3-methyl-2-oxo-2,3-dihydro-1,3-benzoxazole-5-carboxylate
594	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 1 <i>H</i> -benzimidazole-2-carboxylate
596	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-cyclohexyl-1-[[{(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
598	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 6-hydroxy-4,7-dimethoxy-1-benzofuran-5-carboxylate
600	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(4-methylcyclohexyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
602	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl [1,2,4]triazolo[4,3- <i>a</i> ]pyridine-6-carboxylate
604	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 2-hydroxy-4-oxo-4-(2-thienyl)butanoate
606	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3,5-dichlorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
608	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 4-(2-hydroxy-5-methylphenyl)-4-oxobutanoate
610	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 3-phenoxybenzoate
612	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[{(3-ethylbenzyl)amino]methyl}propyl 4-[(aminocarbonyl)amino]benzoate
614	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([[(1 <i>S</i> )-1-(hydroxymethyl)-3-(methylthio)propyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-

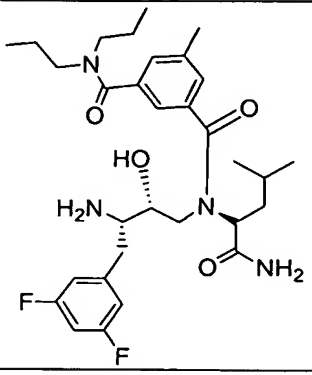
	methylbenzoate	
616	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 7-hydroxy-4-oxochromane-2-carboxylate	
618	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(1 <i>S</i> )-1-(hydroxymethyl)-3-methylbutyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
620	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(1 <i>R</i> )-1-(hydroxymethyl)propyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]benzoate	
622	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(1-methyl-3-phenylpropyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
439	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3,3-dimethylbutyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
441	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
443	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
445		
447		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(1,3-diphenylpropyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
449		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>S</i> )-1-(hydroxymethyl)propyl]- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
451	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -[(3 <i>S</i> )-2-oxoazepan-3-yl]- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
453	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> '-cyclohexyl- <i>N</i> -(3-ethylbenzyl)pentanediamide	
455	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methylphenyl)butyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	



457	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>3</sup> -[(2-propylpentyl)sulfonyl]-β-alaninamide trifluoroacetate (salt)	
459	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(1,3-thiazol-2-yl)benzamide dihydrochloride	
461	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(2-furyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
463	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -{3-[methyl(phenyl)amino]propyl}- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
465	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-methylphenyl)butyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
467	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-oxo-1-(2-thienylmethyl)pyrrolidine-3-carboxamide	
469	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-[(butylthio)methyl]- <i>N</i> -(3-ethylbenzyl)-5-methyl-2-furamide	
471	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-{[(2-hydroxyethyl)amino]sulfonyl}benzamide	
473		
475		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylcyclohexyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
477	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(2-oxo-1,3-oxazolidin-3-yl)benzamide	
479	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(1 <i>H</i> -pyrrol-1-yl)benzamide	
481	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(6-methoxy-1,2,3,4-tetrahydronaphthalen-1-yl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
483	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-1,3,4,5-tetrahydrothiopyrano[4,3- <i>b</i> ]indole-8-carboxamide	
485	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> '-[2-(trifluoromethyl)phenyl]succinamide	
487	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
489	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4,5-dimethyl-2-(1 <i>H</i> -pyrrol-1-yl)thiophene-3-carboxamide	

491	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(2,3-dihydroxypropyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
493	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(2 <i>S</i> )-2-hydroxypropyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
495	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -[(1 <i>R</i> )-1-methylpropyl]- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
497	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-chloro- <i>N</i> -(3-ethylbenzyl)-4-(methylsulfonyl)benzamide	
499	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(2-hydroxyethyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
501	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methoxyphenyl)butyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
503	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-{methyl[(trifluoromethyl)sulfonyl]amino} benzamide hydrochloride	
505	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-hydroxy-6-(1-hydroxy-2,2-dimethylpropyl)pyridine-2-carboxamide	
507	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(1,3-dicyclohexylpropyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
509	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2,2'-bithiophene-5-carboxamide	
511	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(1 <i>H</i> -imidazol-1-yl)butanamide	
513	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2,3-dihydroxy- <i>N</i> '-(4-methoxyphenyl)succinamide	
515	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-hydroxyphenyl)butyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
517	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethyl)phenyl]butyl}- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
519	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
521	<i>N</i> -[2-(aminocarbonyl)-1 <i>H</i> -indol-6-yl]- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
523	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
525		

527		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(1-oxo-1,3-dihydro-2 <i>H</i> -isoindol-2-yl)butanamide
529		
531		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-chloro- <i>N</i> -(3-ethylbenzyl)-4-(methylsulfonyl)thiophene-2-carboxamide
533		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(1-ethylpropyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
535		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -{[(5 <i>R</i> )-3-ethyl-2-oxo-1,3-oxazolidin-5-yl]methyl}-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
537		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-methyl-7-(trifluoromethyl)pyrazolo[1,5- <i>a</i> ]pyrimidine-2-carboxamide
539		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>2</sup> -[(methylthio)acetyl]-3-[(1-propylbutyl)sulfonyl]alaninamide hydrochloride
541		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(2,3-dimethylcyclohexyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
543		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4,5-dimethoxy-1-benzothiophene-2-carboxamide
545		<i>N</i> <sup>1</sup> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-fluoro-5-(trifluoromethyl)phenyl]-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
547		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -{[(5 <i>S</i> )-3-ethyl-2-oxo-1,3-oxazolidin-5-yl]methyl}-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
549		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(1,3-benzodioxol-5-yl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
551		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,5-dioxo-1,2,4-triazolidin-4-yl)- <i>N</i> -(3-ethylbenzyl)benzamide
553		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-hydroxy- <i>N</i> -(3-methoxybenzyl)-3-[(3-methoxyphenyl)sulfonyl]propanamide hydrochloride

555		
557	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(2-methylcyclohexyl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
559	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(2-{4-[(3-chlorobenzyl)oxy]phenyl}ethyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
561	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-oxo-4-(3-thienyl)butanamide	
563	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)-5-fluorophenyl]-2-hydroxybutyl}- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
565	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-oxo-4-[3-(trifluoromethyl)phenyl]butanamide	
567	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethoxy)phenyl]butyl}- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
569	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(hydroxymethyl)-3-(methylthio)propyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
571	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(1 <i>H</i> -1,2,3-benzotriazol-1-yl)- <i>N</i> -(3-ethylbenzyl)hexanamide	
573	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methylphenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
575	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)- <i>N</i> -(3-ethylbenzyl)-2- {[ (1-propylbutyl)sulfonyl]methyl}propanamide	
577	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4- {[ (trifluoromethyl)sulfonyl]amino} butanamide trifluoroacetate (salt)	
579	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(5-methyl-1,3-dioxo-1,3-dihydro-2 <i>H</i> -isoindol-2-yl)acetamide	
581	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-hydroxypropyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
583	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[1-(hydroxymethyl)propyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
585	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-dichlorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
587	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-3- {[ (2-hydroxyethyl)(propyl)amino]sulfonyl}- <i>N</i> -(3-methoxybenzyl)propanamide hydrochloride	
589	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(benzylthio)- <i>N</i> -(3-ethylbenzyl)nicotinamide	
591	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-	

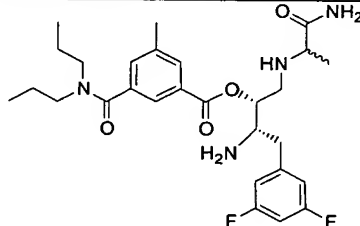
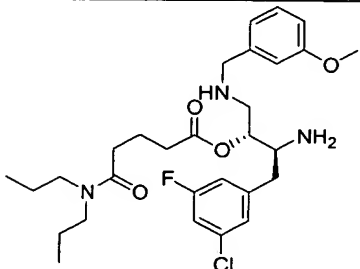
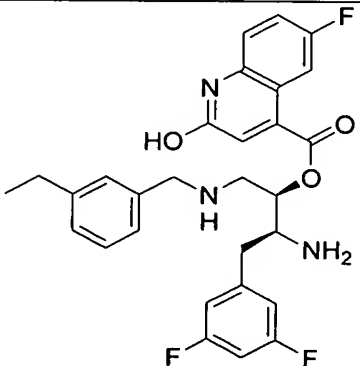
	1 <i>H</i> -pyrazole-5-carboxamide
593	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-6-chloro- <i>N</i> -(3-ethylbenzyl)-3-methyl-2-oxo-2,3-dihydro-1,3-benzoxazole-5-carboxamide
595	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-1 <i>H</i> -benzimidazole-2-carboxamide
597	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-cyclohexyl-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
599	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-6-hydroxy-4,7-dimethoxy-1-benzofuran-5-carboxamide
601	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(4-methylcyclohexyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
603	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)[1,2,4]triazolo[4,3- <i>a</i> ]pyridine-6-carboxamide
605	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-oxo-4-(2-thienyl)butanamide
607	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-dichlorophenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
609	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(2-hydroxy-5-methylphenyl)-4-oxobutanamide
611	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-phenoxybenzamide
613	4-[(aminocarbonyl)amino]- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)benzamide
615	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>S</i> )-1-(hydroxymethyl)-3-(methylthio)propyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
617	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-7-hydroxy-4-oxochromane-2-carboxamide
619	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>S</i> )-1-(hydroxymethyl)-3-methylbutyl]-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
621	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>R</i> )-1-(hydroxymethyl)propyl]- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
623	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(1-methyl-3-phenylpropyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
624	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-(2,3-dihydro-1-benzofuran-5-yl)-1,3-thiazole-4-carboxylate
626	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)phenyl]-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
628	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-chlorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
630	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-oxo-3-(pentylamino)propanoate
632	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(trifluoromethoxy)benzoate
634	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-4-methylphenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
636	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-chloro-5-fluorophenyl)-1-{[(3-

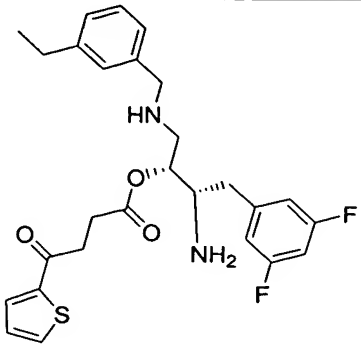
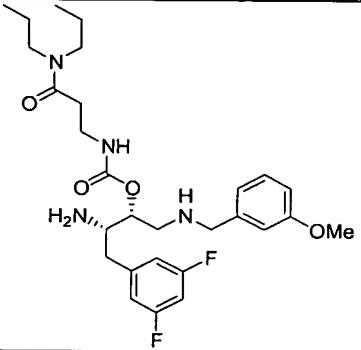
	methylbutyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
638	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)-2-{[(1-propylbutyl)sulfonyl]methyl}propanoate
640	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-{[4-(acetylamino)phenyl]amino}-4-oxobutanoate
642	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(1-cyanoethyl)benzoate
644	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-oxo-4-[(5-phenyl-1,3,4-thiadiazol-2-yl)amino]butanoate
646	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-[3-(trifluoromethoxy)phenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
648	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[2-(2-oxo-2-pyrrolidin-1-ylethoxy)phenyl]amino}methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
650	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-chlorophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
652	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (1,1-dioxidotetrahydro-2-thienyl)acetate
654	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-chlorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
656	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-hex-1-yn-1-ynicotinate
658	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-bromophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
660	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-methoxyisoxazole-5-carboxylate
662	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2,3-dimethyl-1 <i>H</i> -indole-7-carboxylate
664	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(3-chlorophenyl)-2-hydroxy-4-oxobutanoate
666	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-4-methoxyphenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
668	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (1-methyl-1 <i>H</i> -indol-3-yl)(oxo)acetate
670	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-4-methylphenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
672	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(4-methylphenyl)propyl 3-[(dipropylamino)sulfonyl]propanoate
674	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-fluoro-4-methylphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
676	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-

	ethylbenzyl)amino]methyl} propyl [5-(4-methylphenyl)-2 <i>H</i> -tetrazol-2-yl]acetate
678	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-dichlorophenyl)-1-[[3-methoxybenzyl)amino]methyl} propyl 3-[(dipropylamino)sulfonyl]propanoate
680	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-(methylbutyl)amino]methyl}-3-(2-thienyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
682	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl 5-methyl-3-phenylisoxazole-4-carboxylate
684	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-fluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
686	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl <i>N</i> -[(methylsulfonyl)acetyl]- <i>N</i> -pentylglycinate
688	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(4-methoxybenzoyl)glycinate
690	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(2,6-difluorobenzoyl)glycinate
692	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl 4-(1 <i>H</i> -indol-3-yl)-4-oxobutanoate
694	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl 4-[(5-benzyl-1,3,4-thiadiazol-2-yl)amino]-4-oxobutanoate
696	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl 4-(3-fluoro-4-methoxyphenyl)-4-oxobutanoate
698	ethyl 4-[[2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-({3-[(dipropylamino)carbonyl]-5-methylbenzoyl}oxy)butyl]amino} piperidine-1-carboxylate
700	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl 4-(2-fluorobenzoyl)-1 <i>H</i> -pyrrole-2-carboxylate
702	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-chlorophenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
704	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-(methylbutyl)amino]methyl}-3-[3-(trifluoromethyl)phenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
706	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-hydroxyphenyl)-1-[[3-(methylbutyl)amino]methyl} propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
708	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl (4-morpholin-4-ylphenyl)acetate
710	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-(methoxybenzyl)amino]methyl}-3-[3-(trifluoromethoxy)phenyl]propyl 3-[(dipropylamino)sulfonyl]propanoate
712	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl 4-[benzyl(1-cyclopropylethyl)amino]-4-oxobutanoate
714	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-methoxybenzyl)amino]methyl} propyl 3-(2,5-dimethylbenzoyl)-5-methylbenzoate
716	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl} propyl 4-[(2-methoxy-5-methylphenyl)amino]-4-oxobutanoate

718	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (3-hydroxyphenyl)acetate
720	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[hydroxy(2-methylphenyl)methyl]-5-methylbenzoate
722	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-(ethylthio)nicotinate
724	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[4-(2-furoyl)piperazin-1-yl]-4-oxobutanoate
726	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-fluoro-4-methylphenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
728	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-oxoisindoline-1-carboxylate
730	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(ethylthio)benzoate
732	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl thieno[2,3- <i>b</i> ]quinoline-2-carboxylate
734	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(4-methyl-1,3-oxazol-2-yl)benzoate hydrochloride
736	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-fluorophenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
738	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-[2-furoyl(methyl)amino]benzoate
740	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-hydroxy-4-(3-methoxyphenyl)-4-oxobutanoate
742	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cycloheptylamino)methyl]-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
744	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methylbutyl)amino]methyl}-3-(4-methylphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
746	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-5-hydroxyphenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate hydrochloride
748	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-hydroxy-1 <i>H</i> -indole-2-carboxylate
750	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2,2-dimethylchromane-8-carboxylate
752	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 6-benzylpyrazine-2-carboxylate 4-oxide
754	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl {2-[(dipropylamino)sulfonyl]ethyl}carbamate
756	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(hydroxymethyl)-2-methylpropyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
758	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-chloro-5-fluorophenyl)propyl 3-[(dipropylamino)sulfonyl]propanoate

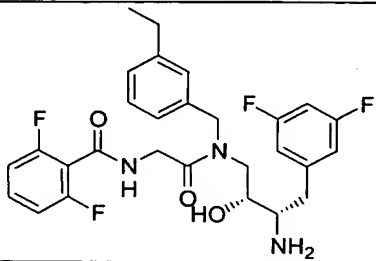
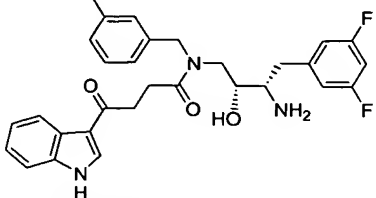


760	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(4-methoxyphenyl)-4-oxobutanoate	
762	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-hydroxyphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
764	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-methyl-4-oxo-3,4-dihydrophthalazine-1-carboxylate	
766	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3,4-dihydro-2 <i>H</i> -1,5-benzodioxepine-7-carboxylate	
768	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [4-(2,5-dioxypyrrolidin-1-yl)phenoxy]acetate	
770	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(2-furyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
772	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-methyl-4-oxo-3,4-dihydrothieno[2,3- <i>d</i> ]pyrimidine-6-carboxylate	
774	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(1,3-benzodioxol-5-yl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
776		
778		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-chloro-5-fluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 5-(dipropylamino)-5-oxopentanoate
780		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 6-fluoro-2-hydroxyquinoline-4-carboxylate

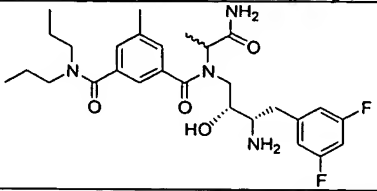
782		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl 4-oxo-4-(2-thienyl)butanoate
784		
786		(1 <i>R</i> ,2 <i>R</i> )-2-amino-1-([(3-methoxybenzyl)amino]methyl)-3-(phenylthio)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
788		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(1 <i>R</i> )-1-(hydroxymethyl)-2-methylpropyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
790		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(1 <i>R</i> ,2 <i>S</i> )-1-(hydroxymethyl)-2-methylbutyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
792		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl 2-(phenoxy)methyl)benzoate
794		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl 5-[(2,4-difluorophenyl)amino]-5-oxopentanoate
796		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl 5-[(4,6-dimethylpyrimidin-2-yl)amino]-5-oxopentanoate
798		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-methoxybenzyl)amino]methyl)propyl 3-(3-methoxybenzoyl)-5-methylbenzoate
800		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)phenyl]-1-([(3-methoxybenzyl)amino]methyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
802		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl 4-(3,4-dichlorophenyl)-4-oxobutanoate
804		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-([(3-methoxybenzyl)amino]methyl)-3-[4-(methoxycarbonyl)phenyl]propyl 3-[(dipropylamino)carbonyl]-5-

	methylbenzoate
806	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-[(4-acetylphenyl)amino]-5-oxopentanoate
808	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[4-(benzyloxy)phenyl]-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
810	(1 <i>R</i> ,2 <i>R</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(phenylthio)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
812	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(2-[(methylamino)carbonyl]phenyl)thio)propanoate
814	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 3-[(1-propylbutyl)thio]propanoate hydrochloride
816	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[(4-ethoxyphenyl)amino]-4-oxobutanoate
818	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)-5-fluorophenyl]-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
820	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({2-({[(3-methoxyphenyl)amino]carbonyl}oxy)ethyl}amino)methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
625	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(2,3-dihydro-1-benzofuran-5-yl)- <i>N</i> -(3-ethylbenzyl)-1,3-thiazole-4-carboxamide
627	<i>N</i> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)phenyl]-2-hydroxybutyl]}- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N</i> , <i>N</i> -dipropylisophthalamide
629	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-chlorophenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide
631	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> -pentylmalonamide
633	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(trifluoromethoxy)benzamide
635	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methylphenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide
637	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methylbutyl)propanamide
639	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)- <i>N</i> -(3-ethylbenzyl)-2-[(1-propylbutyl)sulfonyl]methyl}propanamide
641	<i>N</i> '-[4-(acetylamino)phenyl]- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)succinamide
643	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(1-cyanoethyl)- <i>N</i> -(3-ethylbenzyl)benzamide
645	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> '-(5-phenyl-1,3,4-thiadiazol-2-yl)succinamide
647	<i>N</i> <sup>1</sup> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethoxy)phenyl]butyl]}- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
649	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -[2-(2-oxo-2-pyrrolidin-1-ylethoxy)phenyl]- <i>N</i> , <i>N</i> '-dipropylisophthalamide

651	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-chlorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
653	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(1,1-dioxidotetrahydro-2-thienyl)- <i>N</i> -(3-ethylbenzyl)acetamide	
655	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-chlorophenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
657	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-hex-1-yn-1-ylnicotinamide	
659	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methylbutyl)propanamide	
661	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-methoxyisoxazole-5-carboxamide	
663	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2,3-dimethyl-1 <i>H</i> -indole-7-carboxamide	
665	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3-chlorophenyl)- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-oxobutanamide	
667	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methoxyphenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
669	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(1-methyl-1 <i>H</i> -indol-3-yl)-2-oxoacetamide	
671	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methylphenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
673	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-methylphenyl)butyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
675	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methylphenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
677	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[5-(4-methylphenyl)-2 <i>H</i> -tetrazol-2-yl]acetamide	
679	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-dichlorophenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
681	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
683	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-methyl-3-phenylisoxazole-4-carboxamide	
685	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluorophenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
687	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -[(methylsulfonyl)acetyl]- <i>N</i> <sup>2</sup> -pentylglycinamide	
689		

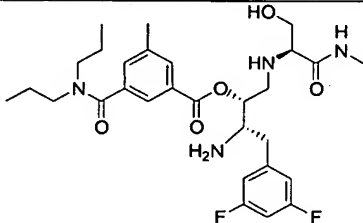
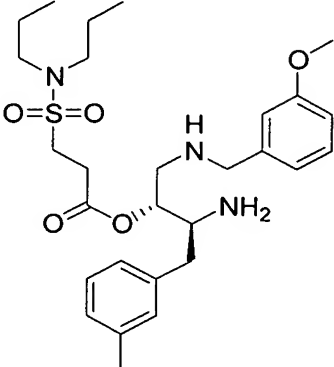
691		
693		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(1 <i>H</i> -indol-3-yl)-4-oxobutanamide
695	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(5-benzyl-1,3,4-thiadiazol-2-yl)- <i>N</i> -(3-ethylbenzyl)succinamide	
697	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(3-fluoro-4-methoxyphenyl)-4-oxobutanamide	
699	ethyl 4-([(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]{3-[(dipropylamino)carbonyl]-5-methylbenzoyl}amino)piperidine-1-carboxylate	
701	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(2-fluorobenzoyl)-1 <i>H</i> -pyrrole-2-carboxamide	
703	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-chlorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
705	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethyl)phenyl]butyl}- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
707	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-hydroxyphenyl)butyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
709	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(4-morpholin-4-ylphenyl)acetamide	
711	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethoxy)phenyl]butyl}-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
713	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> '-benzyl- <i>N</i> '-(1-cyclopropylethyl)- <i>N</i> -(3-ethylbenzyl)succinamide	
715	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(2,5-dimethylbenzoyl)- <i>N</i> -(3-methoxybenzyl)-5-methylbenzamide	
717	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> '-(2-methoxy-5-methylphenyl)succinamide	
719	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(3-hydroxyphenyl)acetamide	
721	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-[hydroxy(2-methylphenyl)methyl]- <i>N</i> -(3-methoxybenzyl)-5-methylbenzamide	
723	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-(ethylthio)nicotinamide	
725	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-[4-(2-furoyl)piperazin-1-yl]-4-oxobutanamide	
727	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methylphenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide	

729	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-oxoisindoline-1-carboxamide
731	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(ethylthio)benzamide
733	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)thieno[2,3- <i>b</i> ]quinoline-2-carboxamide
735	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(4-methyl-1,3-oxazol-2-yl)benzamide hydrochloride
737	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
739	<i>N</i> -(2-{[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}phenyl)- <i>N</i> -methyl-2-furamide
741	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-(3-methoxyphenyl)-4-oxobutanamide
743	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -cycloheptyl-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide
745	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-methylphenyl)butyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
747	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-5-hydroxyphenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide hydrochloride
749	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-hydroxy-1 <i>H</i> -indole-2-carboxamide
751	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2,2-dimethylchromane-8-carboxamide
753	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-6-benzyl- <i>N</i> -(3-ethylbenzyl)pyrazine-2-carboxamide 4-oxide
755	2-({[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-methoxybenzyl)amino]carbonyl}amino)- <i>N</i> , <i>N</i> -dipropylethanesulfonamide
757	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>R</i> )-1-(hydroxymethyl)-2-methylpropyl]-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide
759	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-3-[(dipropylamino)sulfonyl]propanamide
761	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(4-methoxyphenyl)-4-oxobutanamide
763	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-hydroxyphenyl)butyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
765	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-methyl-4-oxo-3,4-dihydrophthalazine-1-carboxamide
767	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3,4-dihydro-2 <i>H</i> -1,5-benzodioxepine-7-carboxamide
769	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-[4-(2,5-dioxopyrrolidin-1-yl)phenoxy]- <i>N</i> -(3-ethylbenzyl)acetamide
771	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(2-furyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
773	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-methyl-4-oxo-3,4-dihydrothieno[2,3- <i>d</i> ]pyrimidine-6-carboxamide
775	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(1,3-benzodioxol-5-yl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-

	methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
777	
779	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-chloro-5-fluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylpentanediamide
781	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-6-fluoro-2-hydroxyquinoline-4-carboxamide
783	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-oxo-4-(2-thienyl)butanamide
785	<i>N</i> <sup>3</sup> -{[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-methoxybenzyl)amino]carbonyl}- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropyl-β-alaninamide
787	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>R</i> )-3-amino-2-hydroxy-4-(phenylthio)butyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
789	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>R</i> )-1-(hydroxymethyl)-2-methylpropyl]-5-methyl- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylisophthalamide
791	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>R</i> ,2 <i>S</i> )-1-(hydroxymethyl)-2-methylbutyl]-5-methyl- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylisophthalamide
793	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(phenoxymethyl)benzamide
795	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(2,4-difluorophenyl)- <i>N</i> -(3-ethylbenzyl)pentanediamide
797	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(4,6-dimethylpyrimidin-2-yl)- <i>N</i> -(3-ethylbenzyl)pentanediamide
799	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(3-methoxybenzoyl)- <i>N</i> -(3-methoxybenzyl)-5-methylbenzamide
801	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)phenyl]-2-hydroxybutyl}- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
803	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,4-dichlorophenyl)- <i>N</i> -(3-ethylbenzyl)-4-oxobutanamide
805	methyl 4-[(2 <i>S</i> ,3 <i>R</i> )-2-amino-4-[[3-[(dipropylamino)carbonyl]-5-methylbenzoyl](3-methoxybenzyl)amino]-3-hydroxybutyl}benzoate
807	<i>N</i> -(4-acetylphenyl)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)pentanediamide
809	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[4-(benzyloxy)phenyl]-2-hydroxybutyl}- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylisophthalamide
811	<i>N</i> -[(2 <i>R</i> ,3 <i>R</i> )-3-amino-2-hydroxy-4-(phenylthio)butyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylisophthalamide
813	2-[(3-[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]-3-oxopropyl}thio)- <i>N</i> -methylbenzamide
815	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-3-[(1-propylbutyl)thio]propanamide hydrochloride
817	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(4-ethoxyphenyl)- <i>N</i> -(3-ethylbenzyl)succinamide
819	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)-5-fluorophenyl]-2-hydroxybutyl}- <i>N</i> <sup>1</sup> -(3-

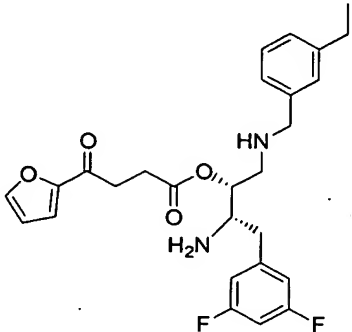
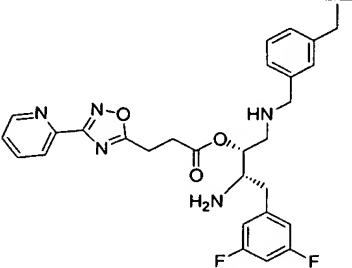
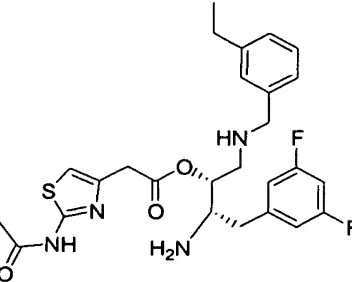
	methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
821	2-([(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]{3-[(dipropylamino)carbonyl]-5-methylbenzoyl}amino)ethyl (3-methoxyphenyl)carbamate
822	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(benzyloxy)benzoate
824	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(1 <i>S</i> )-2-hydroxy-1-methylethyl]amino)methylpropyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
826	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(pentafluorophenyl)-1-([(3-(trifluoromethyl)benzyl)amino]methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
828	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(4-hydroxyphenyl)-4-oxobutanoate
830	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-[3-(trifluoromethyl)phenyl]propyl 3-[(dipropylamino)sulfonyl]propanoate
832	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(piperidin-3-ylsulfonyl)benzoate dihydrochloride
834	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 6-chloro-4-hydroxyquinoline-2-carboxylate
836	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(2-thienyl)propyl 5-(dipropylamino)-5-oxopentanoate
838	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-4-methylpentyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
840	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (6-oxo-3-phenylpyridazin-1(6 <i>H</i> )-yl)acetate
842	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-{4-[(methylsulfonyl)amino]phenyl}propanoate
844	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-fluoro-3-methylphenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
846	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-methylphenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
848	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-iodobenzyl)amino]methyl}propyl 3-(2-chlorophenoxy)propanoate
850	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-fluorophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
852	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(4-chlorobenzoyl)-D-alaninate
854	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)-5-fluorophenyl]-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate hydrochloride
856	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(4-methylphenyl)-4-oxobutanoate
858	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-oxo-4-{[(3-

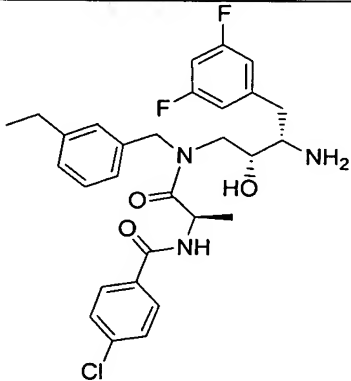
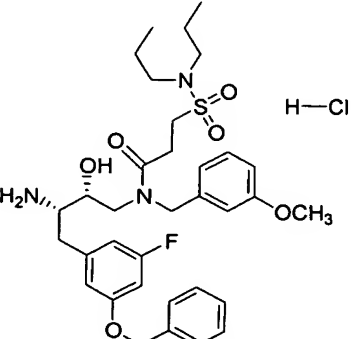


	(trifluoromethyl)phenyl]amino} butanoate	
860	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(1,3-benzodioxol-5-yl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
862	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (5-pyridin-2-yl-2 <i>H</i> -tetrazol-2-yl)acetate	
864		
866		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(3-methylphenyl)propyl 3-[(dipropylamino)sulfonyl]propanoate
868	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl isoxazole-5-carboxylate	
870	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (3,5-dimethoxyphenoxy)acetate	
872	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(2,5-dimethyl-1 <i>H</i> -pyrrol-1-yl)-3-hydroxybenzoate	
874	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-bromophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 5-(dipropylamino)-5-oxopentanoate	
876	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[[5-(cyclopentylmethyl)-1,3,4-thiadiazol-2-yl]amino]-4-oxobutanoate	
878	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-[3-(trifluoromethyl)phenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate	
880	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (3-oxo-1,2-benzisothiazol-2(3 <i>H</i> )-yl)acetate	
882	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-methyl-5-(pyrrolidin-1-ylcarbonyl)-1 <i>H</i> -pyrrol-3-yl]amino)methylpropyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
884	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(3,4-difluorophenyl)-4-oxobutanoate	
886	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(2-naphthyl)-4-oxobutanoate	
888	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4,6-diethoxypyridine-2-carboxylate	

890	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(5-methyl-1 <i>H</i> -pyrrol-2-yl)-4-oxobutanoate
892	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-({[2-(methylamino)ethyl]amino}sulfonyl)benzoate hydrochloride
894	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-methyl-5-(4-methylbenzoyl)benzoate
896	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(1,3-benzodioxol-5-yl)-1-[(benzylamino)methyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
898	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(piperazin-1-ylsulfonyl)benzoate hydrochloride
900	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(2-[4-(aminosulfonyl)phenyl]ethyl)amino]methyl]-3-(3,5-difluorophenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
902	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[2-hydroxy-1-(hydroxymethyl)ethyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
904	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-fluoro-3-methylphenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
906	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(3-oxo-2,1-benzisothiazol-1(3 <i>H</i> )-yl)propanoate
908	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (2,6-dihydroxypyrimidin-4-yl)acetate
910	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-[3-(trifluoromethyl)phenyl]propyl 5-(dipropylamino)-5-oxopentanoate
912	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-hydroxyphenyl)propyl 3-[(dipropylamino)sulfonyl]propanoate
914	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(3,4-difluorophenyl)-2-methyl-4-oxobutanoate
916	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-oxo-5-[(2-pyridin-2-ylethyl)amino]pentanoate
918	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [2-(4-fluorophenyl)-1,3-benzoxazol-5-yl]acetate
920	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(anilino)carbonyl)glycinate
922	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(2,6-dimethoxybenzoyl)glycinate
924	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-(1,3-dithian-2-yl)-3-furoate
926	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-[2-oxo-2-(propylamino)ethyl]benzoate
928	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-bromophenyl)propyl 3-[(dipropylamino)sulfonyl]propanoate

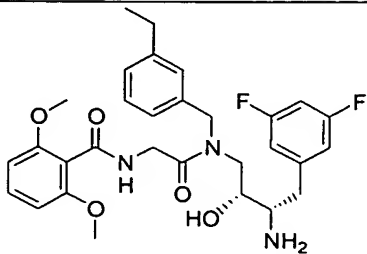
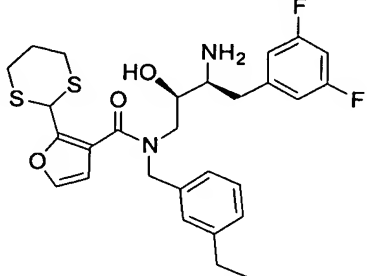
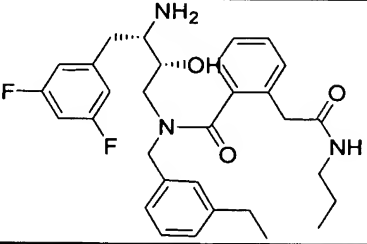
930	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-iodobenzyl)amino]methyl}propyl 3-(2-fluorophenyl)propanoate
932	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-methylthiophene-2-carboxylate
934	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-iodobenzyl)amino]methyl}propyl [4-(benzyloxy)phenyl]acetate
936	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [(5,7-dimethyl[1,2,4]triazolo[4,3- <i>a</i> ]pyrimidin-3-yl)thio]acetate
938	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[(1-acetyl-2,3-dihydro-1 <i>H</i> -indol-7-yl)amino]-4-oxobutanoate
940	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-[(3-acetylphenyl)amino]-5-oxopentanoate
942	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(4-chlorophenoxy)-2-hydroxypropanoate
944	<i>N</i> <sup>3</sup> -[(1 <i>S</i> ,2 <i>R</i> )-3-(benzylamino)-1-(3-fluoro-4-methoxybenzyl)-2-hydroxypropyl]- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylbenzene-1,3,5-tricarboxamide
946	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-methylphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
948	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 1 <i>H</i> -indole-7-carboxylate
950	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methylbutyl)amino]methyl}-3-(3-methylphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
952	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(1,2,3-thiadiazol-4-yl)benzoate
954	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)-5-fluorophenyl]-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
956	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)-2-{[(1-propylbutyl)sulfonyl]methyl}propanoate
958	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methylbutyl)amino]methyl}-3-(4-methylphenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
960	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-[3-fluoro-5-(trifluoromethyl)phenyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
962	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [1-methyl-3-(methylthio)-1 <i>H</i> -indol-2-yl]acetate
964	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-dichlorophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
966	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [(2-{[4-(1,3-oxazol-5-yl)phenyl]amino}-2-oxoethyl)thio]acetate

968		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl}propyl 4-(2-furyl)-4-oxobutanoate
970		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl}propyl 3-(3-pyridin-2-yl-1,2,4-oxadiazol-5-yl)propanoate
972		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl}propyl [2-(acetamino)-1,3-thiazol-4-yl]acetate
974	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl}propyl [(4-methyl-4 <i>H</i> -1,2,4-triazol-3-yl)thio](phenyl)acetate	
976	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-chlorophenyl)-1-([(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
978	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl}propyl 4-(1,3-benzothiazol-2-yl)butanoate	
980	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl}propyl 4-[(3-chloro-4-fluorophenyl)amino]-4-oxobutanoate	
982	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)-5-fluorophenyl]-1-([(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate	
984	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl}propyl [(2-oxo-2,3-dihydroquinazolin-4-yl)thio]acetate	
823	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(benzyloxy)- <i>N</i> -(3-ethylbenzyl)benzamide	
825	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>S</i> )-2-hydroxy-1-methylethyl]-5-methyl- <i>N,N'</i> -dipropylisophthalamide	
827	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(pentafluorophenyl)butyl]-5-methyl- <i>N,N'</i> -dipropyl- <i>N</i> -[3-(trifluoromethyl)benzyl]isophthalamide	

829	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(4-hydroxyphenyl)-4-oxobutanamide	
831	<i>N</i> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethyl)phenyl]butyl}-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
833	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(piperidin-3-ylsulfonyl)benzamide dihydrochloride	
835	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-6-chloro- <i>N</i> -(3-ethylbenzyl)-4-hydroxyquinoline-2-carboxamide	
837	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]- <i>N</i> -(3-methoxybenzyl)- <i>N</i> ', <i>N</i> '-dipropylpentanediamide	
839	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-5-methylhexyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
841	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(6-oxo-3-phenylpyridazin-1(6 <i>H</i> )-yl)acetamide	
843	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-{4-[(methylsulfonyl)amino]phenyl}propanamide	
845	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluoro-3-methylphenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
847	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-methylphenyl)butyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide	
849	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(2-chlorophenoxy)- <i>N</i> -(3-iodobenzyl)propanamide	
851	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
853		
855		<i>N</i> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)-5-fluorophenyl]-2-hydroxybutyl}-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide hydrochloride

857		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(4-methylphenyl)-4-oxobutanamide
859		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl}propyl 4-oxo-4-[[3-(trifluoromethyl)phenyl]amino}butanoate
861		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(1,3-benzodioxol-5-yl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
863		
865		
867	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methylphenyl)butyl]-3-[[[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide	
869	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)isoxazole-5-carboxamide	
871	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(3,5-dimethoxyphenoxy)- <i>N</i> -(3-ethylbenzyl)acetamide	
873	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(2,5-dimethyl-1 <i>H</i> -pyrrol-1-yl)- <i>N</i> -(3-ethylbenzyl)-3-hydroxybenzamide	
875	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)- <i>N'</i> , <i>N'</i> -dipropylpentanediamide	
877	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N'</i> -[5-(cyclopentylmethyl)-1,3,4-thiadiazol-2-yl]- <i>N</i> -(3-ethylbenzyl)succinamide	
879	<i>N</i> <sup>1</sup> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethyl)phenyl]butyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	

881	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(3-oxo-1,2-benzisothiazol-2(3 <i>H</i> )-yl)acetamide
883	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -[1-methyl-5-(pyrrolidin-1-ylcarbonyl)-1 <i>H</i> -pyrrol-3-yl]- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
885	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,4-difluorophenyl)- <i>N</i> -(3-ethylbenzyl)-4-oxobutanamide
887	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(2-naphthyl)-4-oxobutanamide
889	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4,6-diethoxy- <i>N</i> -(3-ethylbenzyl)pyridine-2-carboxamide
891	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(5-methyl-1 <i>H</i> -pyrrol-2-yl)-4-oxobutanamide
893	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-({2-(methylamino)ethyl}amino)sulfonylbenzamide hydrochloride
895	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-3-methyl-5-(4-methylbenzoyl)benzamide
897	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(1,3-benzodioxol-5-yl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
899	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(piperazin-1-ylsulfonyl)benzamide hydrochloride
901	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -{2-[4-(aminosulfonyl)phenyl]ethyl}-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
903	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[2-hydroxy-1-(hydroxymethyl)ethyl]-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide
905	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluoro-3-methylphenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
907	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(3-oxo-2,1-benzisothiazol-1(3 <i>H</i> )-yl)propanamide
909	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(2,6-dihydroxypyrimidin-4-yl)- <i>N</i> -(3-ethylbenzyl)acetamide
911	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethyl)phenyl]butyl}- <i>N</i> -(3-methoxybenzyl)- <i>N'</i> , <i>N'</i> -dipropylpentanediamide
913	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-hydroxyphenyl)butyl]- <i>N</i> -benzyl-3-[(dipropylamino)sulfonyl]propanamide
915	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,4-difluorophenyl)- <i>N</i> -(3-ethylbenzyl)-2-methyl-4-oxobutanamide
917	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> -(2-pyridin-2-ylethyl)pentanediamide
919	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[2-(4-fluorophenyl)-1,3-benzoxazol-5-yl]acetamide
921	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>2</sup> -(anilino-carbonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)glycinamide

923		
925		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(1,3-dithian-2-yl)- <i>N</i> -(3-ethylbenzyl)-3-furamide
927		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[2-oxo-2-(propylamino)ethyl]benzamide
929	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-bromophenyl)-2-hydroxybutyl]- <i>N</i> -benzyl-3-[(dipropylamino)sulfonyl]propanamide	
931	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(2-fluorophenyl)- <i>N</i> -(3-iodobenzyl)propanamide	
933	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-methylthiophene-2-carboxamide	
935	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-[4-(benzyloxy)phenyl]- <i>N</i> -(3-iodobenzyl)acetamide	
937	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-[(5,7-dimethyl[1,2,4]triazolo[4,3- <i>a</i> ]pyrimidin-3-yl)thio]- <i>N</i> -(3-ethylbenzyl)acetamide	
939	<i>N</i> -(1-acetyl-2,3-dihydro-1 <i>H</i> -indol-7-yl)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)succinamide	
941	<i>N</i> -(3-acetylphenyl)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)pentanediamide	
943	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(4-chlorophenoxy)- <i>N</i> -(3-ethylbenzyl)-2-hydroxypropanamide	
945	<i>N</i> <sup>3</sup> -[(1 <i>S</i> ,2 <i>R</i> )-3-(benzylamino)-1-(3-fluoro-4-methoxybenzyl)-2-hydroxypropyl]- <i>N</i> <sup>1</sup> , <i>N</i> <sup>1</sup> -dipropylbenzene-1,3,5-tricarboxamide	
947	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methylphenyl)butyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
949	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-1 <i>H</i> -indole-7-carboxamide	
951	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methylphenyl)butyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
953	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-	



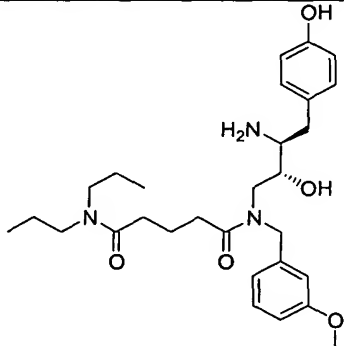
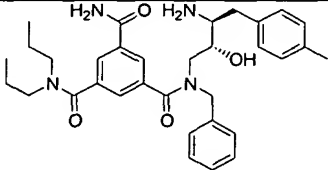
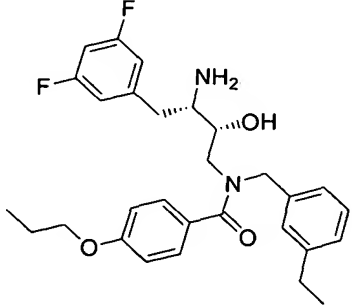
	4-(1,2,3-thiadiazol-4-yl)benzamide
955	<i>N</i> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)-5-fluorophenyl]-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide
957	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)- <i>N</i> -(3-ethylbenzyl)-2- {[ (1-propylbutyl)sulfonyl]methyl} propanamide
959	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-methylphenyl)butyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
961	<i>N</i> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-fluoro-5-(trifluoromethyl)phenyl]-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
963	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[1-methyl-3-(methylthio)-1 <i>H</i> -indol-2-yl]acetamide
965	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-dichlorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
967	2-({2-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]-2-oxoethyl}thio)- <i>N</i> -[4-(1,3-oxazol-5-yl)phenyl]acetamide
969	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(2-furyl)-4-oxobutanamide
971	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(3-pyridin-2-yl-1,2,4-oxadiazol-5-yl)propanamide
973	2-[2-(acetyl-amino)-1,3-thiazol-4-yl]- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)acetamide
975	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[(4-methyl-4 <i>H</i> -1,2,4-triazol-3-yl)thio]-2-phenylacetamide
977	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-chlorophenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
979	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(1,3-benzothiazol-2-yl)- <i>N</i> -(3-ethylbenzyl)butanamide
981	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> '-(3-chloro-4-fluorophenyl)- <i>N</i> -(3-ethylbenzyl)succinamide
983	<i>N</i> -{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)-5-fluorophenyl]-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
985	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[(2-oxo-2,3-dihydroquinazolin-4-yl)thio]acetamide
986	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-methoxybenzyl)amino]methyl} propyl 3-methyl-5-(2-methylbenzoyl)benzoate
988	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-hydroxyphenyl)-1- {[ (3-methoxybenzyl)amino]methyl} propyl 5-(dipropylamino)-5-oxopentanoate
990	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(4-methylphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
992	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 4-propoxybenzoate
994	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 1-methyl-1 <i>H</i> -indole-2-carboxylate
996	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 5-chloro-2-(3-methyl-4 <i>H</i> -1,2,4-triazol-4-yl)benzoate
998	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-

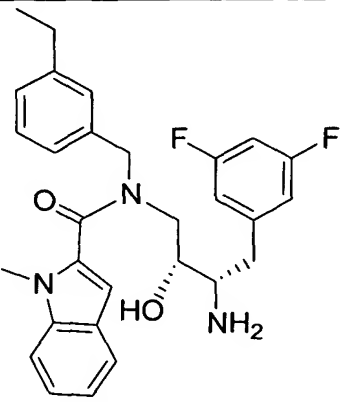
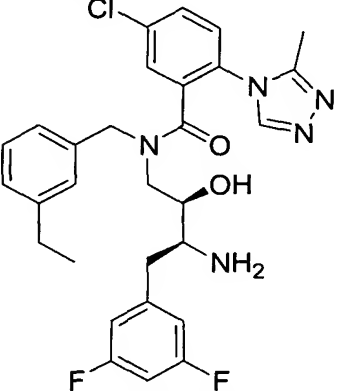
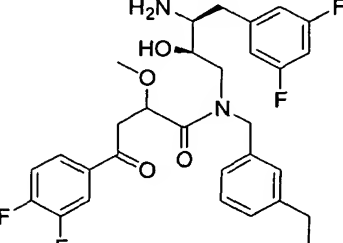
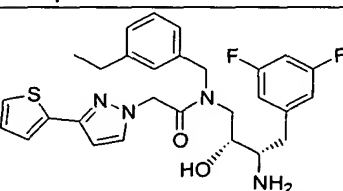
	ethylbenzyl)amino]methyl}propyl 4-(3,4-difluorophenyl)-2-methoxy-4-oxobutanoate
1000	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [3-(2-thienyl)-1 <i>H</i> -pyrazol-1-yl]acetate
1002	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-anilino-5-oxopentanoate
1004	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (2-thioxo-1,3-benzothiazol-3(2 <i>H</i> )-yl)acetate
1006	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-cyclohexylpropyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1008	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-(4-methoxyphenyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1010	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (3-hydroxy-4-methylphenyl)acetate
1012	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-fluoro-5-(trifluoromethyl)phenyl]-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1014	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 7-fluoro-4 <i>H</i> -imidazo[5,1- <i>c</i> ][1,4]benzoxazine-3-carboxylate
1016	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(3,4-dihydro-2 <i>H</i> -1,5-benzodioxepin-7-yl)-4-oxobutanoate
1018	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 1-benzofuran-3-carboxylate
1020	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(3,4-dichlorophenyl)amino]-3-oxopropanoate
1022	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-[3-fluoro-5-(trifluoromethyl)phenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1024	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[(1 <i>R</i> )-2-hydroxy-1-methylethyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1026	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-methylphenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1028	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-oxo-5-(pyridin-3-ylamino)pentanoate
1030	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-methyl-4-oxo-4 <i>H</i> -chromene-6-carboxylate
1032	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl ({2-[(5-methylisoxazol-3-yl)amino]-2-oxoethyl}thio)acetate
1034	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(1 <i>H</i> -imidazol-1-yl)propyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1036	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-fluoro-5-(trifluoromethyl)phenyl]-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
1038	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-hydroxyphenyl)-1-{[(3-methylbutyl)amino]methyl}propyl

	3-[(dipropylamino)sulfonyl]propanoate
1040	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(1,3-benzodioxol-5-yl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1042	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methylbutyl)amino]methyl}-3-(2-thienyl)propyl 3-[(dipropylamino)sulfonyl]propanoate
1044	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[(2,2-dimethylpropanoyl)amino]-2-hydroxybenzoate
1046	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-methoxyphenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1048	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(4-fluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-{[(3-methoxybenzyl)amino]sulfonyl}benzoate
1050	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methylbutyl)amino]methyl}-3-[3-(trifluoromethyl)phenyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1052	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 6-(2-furoylamino)hexanoate
1054	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [(1-phenyl-4,5-dihydro-1 <i>H</i> -tetrazol-5-yl)thio]acetate
1056	(1 <i>S</i> ,2 <i>S</i> )-2-amino-3-phenyl-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-{[(3-methoxybenzyl)amino]sulfonyl}benzoate
1058	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-(3,4-dihydro-2 <i>H</i> -chromen-6-yl)-4-oxobutanoate
1060	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-methoxyphenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1062	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-4-methylphenyl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 5-(dipropylamino)-5-oxopentanoate
1064	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl indolizine-2-carboxylate
1066	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-[3-(trifluoromethoxy)phenyl]propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1068	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl nicotinate 1-oxide
1070	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)-5-fluorophenyl]-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate
1072	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-iodobenzyl)amino]methyl}propyl [(aminocarbonyl)oxy]acetate
1074	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2,3-dihydro-1 <i>H</i> -cyclopenta[ <i>b</i> ]quinoline-9-carboxylate
1076	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-methyl-1 <i>H</i> -pyrazole-5-carboxylate
1078	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-

	ethylbenzyl)amino]methyl}propyl 5-(benzoylamino)pentanoate
1080	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[(methoxymethyl)thio]benzoate
1082	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(1,3-benzothiazol-2-yl)-3-methoxypropanoate
1084	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(methylamino)carbonyl]amino}-3-(3-thienyl)propanoate
1086	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-pyridin-2-ylthiophene-2-carboxylate
1088	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-[3-(benzyloxy)-5-fluorophenyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1090	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (5,6-dimethyl-2,4-dioxo-1,2,3,4-tetrahydropyridin-3-yl)acetate
1092	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3-fluoro-4-methoxyphenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1094	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-isobutyl-1,3-dioxoisindoline-5-carboxylate
1096	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-(acetylamino)-2-furoate
1098	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(4-methoxyphenyl)acetyl]glycinate
1100	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl isoquinoline-4-carboxylate
1102	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[3-(benzyloxy)phenyl]-1-{[(3-methylbutyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1104	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (4-hydroxy-3-methoxyphenyl)acetate
1106	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl [(4-phenyl-4 <i>H</i> -1,2,4-triazol-3-yl)thio]acetate
1108	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (3,5-dimethoxyphenyl)acetate
1110	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(3-methoxyphenyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1112	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (2-ethyl-4 <i>H</i> -[1,2,4]triazolo[1,5- <i>a</i> ]benzimidazol-4-yl)acetate
1114	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(2-furyl)propyl 3-[(dipropylamino)carbonyl]-5-methylbenzoate
1116	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 7-chloro-1-benzofuran-2-carboxylate
1118	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-(1,3-dioxo-1,3-dihydro-2 <i>H</i> -isoindol-2-yl)propanoate

1120	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-(2-oxo-2 <i>H</i> -1,3-benzoxazin-3(4 <i>H</i> )-yl)propanoate
1122	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl (pyrimidin-2-ylthio)acetate
1124	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 4-{{[3-(aminocarbonyl)-4,5,6,7-tetrahydro-1-benzothien-2-yl]amino}-4-oxobutanoate
1126	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl [(5-phenyl-1,3,4-oxadiazol-2-yl)thio]acetate
1128	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl quinoline-6-carboxylate
1130	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(benzylamino)methyl]-3-(2-furyl)propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1132	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 4-(2,3-dihydro-1,4-benzodioxin-6-yl)-4-oxobutanoate
1134	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-(1 <i>H</i> -indol-3-yl)-1 <i>H</i> -pyrazole-5-carboxylate
1136	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 2-hydroxy-4-{{[(methylamino)carbonothioyl]amino}benzoate
1138	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 6-chloronicotinate
1140	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 4-(3-hydroxyphenyl)-4-oxobutanoate
1142	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl (phthalazin-1-ylthio)acetate
1144	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl [(1-oxidopyridin-2-yl)thio]acetate
1146	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-(acetylamino)-5-fluoro-1 <i>H</i> -indole-2-carboxylate
1148	(1 <i>S</i> ,2 <i>S</i> )-2-amino-3-phenyl-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-{{[(3-chlorobenzyl)amino]sulfonyl}benzoate
1150	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-[4-(benzyloxy)phenyl]-1-{{[(3-methoxybenzyl)amino]methyl}propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1152	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(1,3-benzodioxol-5-yl)-1-[(benzylamino)methyl]propyl 3-(aminocarbonyl)-5-[(dipropylamino)carbonyl]benzoate
1154	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 4-(3,4-dichlorophenyl)-2-hydroxy-3-methyl-4-oxobutanoate
1156	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methylbutyl)amino]methyl}-3-[3-(trifluoromethoxy)phenyl]propyl 3-[(dipropylamino)sulfonyl]propanoate
1158	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 4-[(5-methyl-1,3,4-thiadiazol-2-yl)amino]-4-oxobutanoate

1160	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl (2-ethyl-1 <i>H</i> -benzimidazol-1-yl)acetate	
1162	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(1,3-benzodioxol-5-yl)-1-{[(3-methoxybenzyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate	
1164	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(2-oxo-1,3-benzoxazol-3(2 <i>H</i> )-yl)propanoate	
1166	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-dichlorophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl 3-[(dipropylamino)sulfonyl]propanoate	
1168	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 4-[(6-methylpyridin-2-yl)amino]-4-oxobutanoate	
1170	4-((1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl) 3-ethyl (4 <i>R</i> )-1,3-oxazolidine-3,4-dicarboxylate	
987	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)-3-methyl-5-(2-methylbenzoyl)benzamide	
989		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-hydroxyphenyl)butyl]- <i>N</i> -(3-methoxybenzyl)- <i>N'</i> , <i>N'</i> -dipropylpentanediamide
991		<i>N'</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-methylphenyl)butyl]- <i>N'</i> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
993		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-propoxybenzamide

995		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-1-methyl-1 <i>H</i> -indole-2-carboxamide
997		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-chloro- <i>N</i> -(3-ethylbenzyl)-2-(3-methyl-4 <i>H</i> -1,2,4-triazol-4-yl)benzamide
999		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,4-difluorophenyl)- <i>N</i> -(3-ethylbenzyl)-2-methoxy-4-oxobutanamide
1001		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[3-(2-thienyl)-1 <i>H</i> -pyrazol-1-yl]acetamide
1003	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N'</i> -phenylpentanediamide	
1005	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(2-thioxo-1,3-benzothiazol-3(2 <i>H</i> )-yl)acetamide	
1007	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-cyclohexyl-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	
1009	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-methoxyphenyl)butyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide	
1011	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(3-hydroxy-4-methylphenyl)acetamide	
1013	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-fluoro-5-(trifluoromethyl)phenyl]-2-hydroxybutyl}-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N'</i> , <i>N'</i> -dipropylisophthalamide	

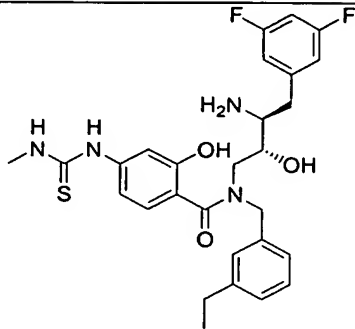
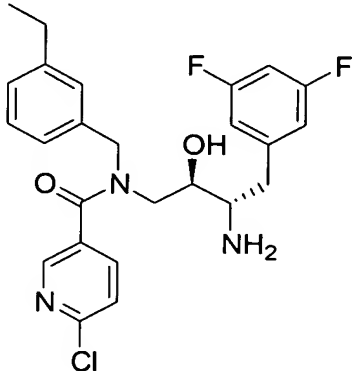
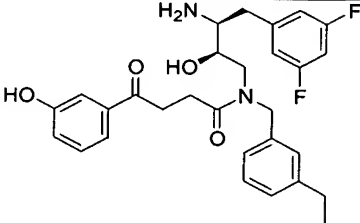
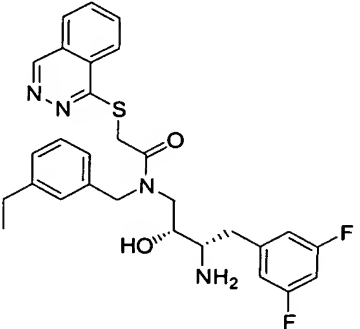
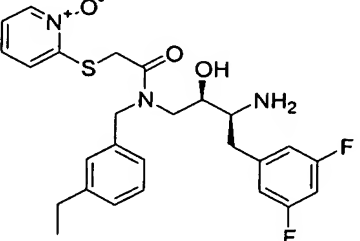
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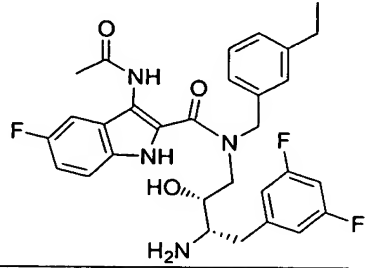
1015	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-7-fluoro-4 <i>H</i> -imidazo[5,1- <i>c</i> ][1,4]benzoxazine-3-carboxamide
1017	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,4-dihydro-2 <i>H</i> -1,5-benzodioxepin-7-yl)- <i>N</i> -(3-ethylbenzyl)-4-oxobutanamide
1019	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-1-benzofuran-3-carboxamide
1021	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3,4-dichlorophenyl)- <i>N</i> -(3-ethylbenzyl)malonamide
1023	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-fluoro-5-(trifluoromethyl)phenyl]-2-hydroxybutyl}- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
1025	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[(1 <i>R</i> )-2-hydroxy-1-methylethyl]-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide
1027	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methylphenyl)butyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide
1029	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> -pyridin-3-ylpentanediamide
1031	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 2-methyl-4-oxo-4 <i>H</i> -chromene-6-carboxylate
1033	2-({2-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]-2-oxoethyl}thio)- <i>N</i> -(5-methylisoxazol-3-yl)acetamide
1035	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -[3-(1 <i>H</i> -imidazol-1-yl)propyl]-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide
1037	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-fluoro-5-(trifluoromethyl)phenyl]-2-hydroxybutyl}-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide
1039	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(4-hydroxyphenyl)butyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methylbutyl)propanamide
1041	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(1,3-benzodioxol-5-yl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> , <i>N</i> '-dipropylisophthalamide
1043	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(2-thienyl)butyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methylbutyl)propanamide
1045	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-[(2,2-dimethylpropanoyl)amino]- <i>N</i> -(3-ethylbenzyl)-2-hydroxybenzamide
1047	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methoxyphenyl)butyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> , <i>N</i> '-dipropylisophthalamide
1049	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(4-fluorophenyl)-2-hydroxybutyl]-3-[(3-methoxybenzyl)amino]sulfonyl]- <i>N</i> -[3-(trifluoromethyl)benzyl]benzamide
1051	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethyl)phenyl]butyl}-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> , <i>N</i> '-dipropylisophthalamide
1053	<i>N</i> -{6-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]-6-oxohexyl}-2-furamide
1055	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[(1-phenyl-4,5-dihydro-1 <i>H</i> -tetrazol-5-yl)thio]acetamide
1057	<i>N</i> -[(2 <i>S</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-3-[(3-methoxybenzyl)amino]sulfonyl]- <i>N</i> -[3-(trifluoromethyl)benzyl]benzamide
1059	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,4-dihydro-2 <i>H</i> -chromen-6-yl)- <i>N</i> -(3-ethylbenzyl)-4-oxobutanamide
1061	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methoxyphenyl)butyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide



1063	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methylphenyl)-2-hydroxybutyl]- <i>N</i> -(3-methoxybenzyl)- <i>N</i> ', <i>N</i> '-dipropylpentanediamide
1065	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)indolizine-2-carboxamide
1067	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethoxy)phenyl]butyl}- <i>N</i> -benzyl-5-methyl- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
1069	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)nicotinamide 1-oxide
1071	<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)-5-fluorophenyl]-2-hydroxybutyl}-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methylbutyl)propanamide
1073	2-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-iodobenzyl)amino]-2-oxoethyl carbamate
1075	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2,3-dihydro-1 <i>H</i> -cyclopenta[ <i>b</i> ]quinoline-9-carboxamide
1077	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-methyl-1 <i>H</i> -pyrazole-5-carboxamide
1079	<i>N</i> -{5-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]-5-oxopentyl} benzamide
1081	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-[(methoxymethyl)thio]benzamide
1083	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(1,3-benzothiazol-2-yl)- <i>N</i> -(3-ethylbenzyl)-3-methoxypropanamide
1085	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-[[[(methylamino)carbonyl]amino}-3-(3-thienyl)propanamide
1087	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-pyridin-2-ylthiophene-2-carboxamide
1089	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)-5-fluorophenyl]-2-hydroxybutyl}- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
1091	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(5,6-dimethyl-2,4-dioxo-1,2,3,4-tetrahydropyridin-3-yl)- <i>N</i> -(3-ethylbenzyl)acetamide
1093	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3-fluoro-4-methoxyphenyl)-2-hydroxybutyl]-5-methyl- <i>N</i> -(3-methylbutyl)- <i>N</i> ', <i>N</i> '-dipropylisophthalamide
1095	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-isobutyl-1,3-dioxoisoindoline-5-carboxamide
1097	5-(acetylamino)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-furamide
1099	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -[(4-methoxyphenyl)acetyl]glycinamide
1101	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)isoquinoline-4-carboxamide
1103	<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[3-(benzyloxy)phenyl]-2-hydroxybutyl}- <i>N</i> <sup>1</sup> -(3-methylbutyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
1105	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(4-hydroxy-3-methoxyphenyl)acetamide
1107	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[(4-phenyl-4 <i>H</i> -1,2,4-triazol-3-yl)thio]acetamide
1109	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(3,5-

	dimethoxyphenyl)- <i>N</i> -(3-ethylbenzyl)acetamide	
1111	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-(3-methoxyphenyl)butyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
1113	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(2-ethyl-4 <i>H</i> -[1,2,4]triazolo[1,5- <i>a</i> ]benzimidazol-4-yl)acetamide	
1115	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(2-furyl)-2-hydroxybutyl]- <i>N</i> -benzyl-5-methyl- <i>N</i> , <i>N</i> '-dipropylisophthalamide	
1117	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-7-chloro- <i>N</i> -(3-ethylbenzyl)-1-benzofuran-2-carboxamide	
1119	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(1,3-dioxo-1,3-dihydro-2 <i>H</i> -isoindol-2-yl)- <i>N</i> -(3-ethylbenzyl)propanamide	
1121	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(2-oxo-2 <i>H</i> -1,3-benzoxazin-3(4 <i>H</i> )-yl)propanamide	
1123	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(pyrimidin-2-ylthio)acetamide	
1125	<i>N</i> '-[3-(aminocarbonyl)-4,5,6,7-tetrahydro-1-benzothien-2-yl]- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)succinamide	
1127	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[(5-phenyl-1,3,4-oxadiazol-2-yl)thio]acetamide	
1129	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)quinoline-6-carboxamide	
1131		<i>N</i> '-[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(2-furyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
1133		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(2,3-dihydro-1,4-benzodioxin-6-yl)- <i>N</i> -(3-ethylbenzyl)-4-oxobutanamide
1135		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(1 <i>H</i> -indol-3-yl)-1 <i>H</i> -pyrazole-5-carboxamide

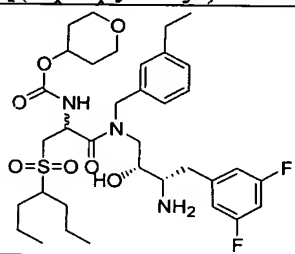
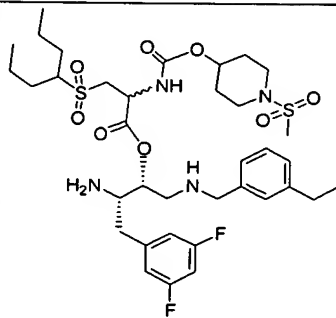
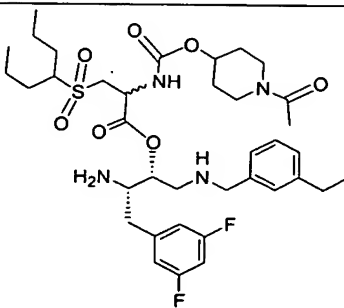
1137		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-[(methylamino)carbonothioyl]amino benzamide
1139		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-6-chloro- <i>N</i> -(3-ethylbenzyl)nicotinamide
1141		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-(3-hydroxyphenyl)-4-oxobutanamide
1143		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-(phthalazin-1-ylthio)acetamide
1145		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[(1-oxidopyridin-2-yl)thio]acetamide

1147		3-(acetylamino)- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-fluoro-1 <i>H</i> -indole-2-carboxamide
1149		<i>N</i> -[(2 <i>S</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-3-[[3-(3-chlorobenzyl)amino]sulfonyl]- <i>N</i> -[3-(trifluoromethyl)benzyl]benzamide
1151		<i>N</i> <sup>1</sup> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-[4-(benzyloxy)phenyl]-2-hydroxybutyl}- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
1153		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(1,3-benzodioxol-5-yl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -benzyl- <i>N</i> <sup>3</sup> , <i>N</i> <sup>3</sup> -dipropylbenzene-1,3,5-tricarboxamide
1155		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(3,4-dichlorophenyl)- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-3-methyl-4-oxobutanamide
1157		<i>N</i> -{(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-[3-(trifluoromethoxy)phenyl]butyl}-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methylbutyl)propanamide
1159		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> -(5-methyl-1,3,4-thiadiazol-2-yl)succinamide
1161		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-2-(2-ethyl-1 <i>H</i> -benzimidazol-1-yl)- <i>N</i> -(3-ethylbenzyl)acetamide
1163		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(1,3-benzodioxol-5-yl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methoxybenzyl)propanamide
1165		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-3-(2-oxo-1,3-benzoxazol-3(2 <i>H</i> )-yl)propanamide
1167		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-dichlorophenyl)-2-hydroxybutyl]-3-[(dipropylamino)sulfonyl]- <i>N</i> -(3-methylbutyl)propanamide
1169		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)- <i>N</i> -(6-methylpyridin-2-yl)succinamide
1171		ethyl (4 <i>R</i> )-4-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl]-1,3-oxazolidine-3-carboxylate
1172		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-(butylsulfinyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1174		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl <i>S</i> -butyl- <i>N</i> -(methoxycarbonyl)-D-cysteinate
1176		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(4,4,4-trifluorobutyl)sulfonyl]-D-alaninate
1178		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(4,4,4-trifluorobutyl)sulfinyl]-D-alaninate
1180		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl <i>N</i> -[(benzyloxy)carbonyl]- <i>S</i> -(4,4,4-trifluorobutyl)-D-cysteinate
1182		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-

	alaninate
1184	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(2,2,2-trifluoroethoxy)carbonyl]-D-alaninate
1186	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(2-cyanoethoxy)carbonyl]-D-alaninate
1188	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -{[(3 <i>R</i> )-pyrrolidin-3-yloxy]carbonyl}-D-alaninate
1190	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -{[(3 <i>S</i> )-tetrahydrofuran-3-yloxy]carbonyl}-D-alaninate
1192	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[2-(acetylamino)ethoxy]carbonyl}-3-(butylsulfonyl)-D-alaninate
1194	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(pyridin-3-ylmethoxy)carbonyl]-D-alaninate
1196	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(pyridin-4-ylmethoxy)carbonyl]-D-alaninate
1198	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1200	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl 3-(butylsulfonyl)- <i>N</i> -[(2-cyanoethoxy)carbonyl]-D-alaninate
1202	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-methylbutyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-(butylsulfonyl)-D-alaninate
1204	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-methylbutyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1206	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl <i>N</i> -[(2-cyanoethoxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1208	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl <i>N</i> -{[2-(acetylamino)ethoxy]carbonyl}-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1210	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-methylbutyl)amino]methyl}propyl <i>N</i> -(methoxycarbonyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1212	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-methylbutyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1214	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[2-(diethylamino)-2-oxoethoxy]carbonyl}-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1216	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(methoxycarbonyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate

1218	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -(isopropoxycarbonyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1220	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[(cyclopropylmethoxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1222	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[(allyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1224	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[(2-cyanoethoxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1226	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[[2-(acetylamino)ethoxy]carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1228	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[(pyridin-3-ylmethoxy)carbonyl]-D-alaninate
1230	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[(pyridin-4-ylmethoxy)carbonyl]-D-alaninate
1232	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl (2 <i>R</i> )-2-[[3-(benzyloxy)carbonyl]amino]-4-(methylsulfonyl)butanoate
1234	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[(benzyloxy)carbonyl]-3-(butylsulfonyl)-D-alaninate
1236	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[(benzyloxy)carbonyl]-3-(butylsulfonyl)-L-alaninate
1238	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([[(1 <i>R</i> )-2-hydroxy-1-phenylethyl]amino]methyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1240	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([[(1 <i>R</i> )-2-methoxy-1-phenylethyl]amino]methyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1242	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([[(1 <i>S</i> )-2-methoxy-1-phenylethyl]amino]methyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1244	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-ethylphenyl)cyclopropyl]amino]methyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1246	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[(prop-2-yn-1-yloxy)carbonyl]-D-alaninate
1248	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[(2-methoxyethoxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate

1250	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(3 <i>R</i> )-1-acetylpyrrolidin-3-yl]oxy}carbonyl}-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1252	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{[(3 <i>S</i> )-tetrahydrofuran-3-yloxy]carbonyl}-D-alaninate
1254	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{[(3 <i>S</i> )-tetrahydrofuran-3-yloxy]carbonyl}-L-alaninate
1256	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1258	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]-L-alaninate
1260	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1262	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1264	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-methylbutyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1266	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1268	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(cyclopropylmethyl)amino]methyl}-3-(3,5-difluorophenyl)propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1270	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylphenyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1272	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(2-[3-(trifluoromethyl)phenyl]ethyl)amino]methyl]propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1274	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[(pyridin-3-ylmethoxy)carbonyl]alaninate
1276	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{[(3 <i>S</i> )-tetrahydrofuran-3-yloxy]carbonyl}alaninate
1278	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{[(3 <i>R</i> )-tetrahydrofuran-3-yloxy]carbonyl}alaninate
1280	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{[(3 <i>S</i> )-tetrahydrofuran-3-yloxy]carbonyl}alaninate
1282	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(3 <i>R</i> )-1-acetylpyrrolidin-3-

	yl]oxy} carbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate	
1284	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{[(3 <i>R</i> )-pyrrolidin-3-yloxy]carbonyl}alaninate	
1286	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(3 <i>R</i> )-1-benzylpyrrolidin-3-yl]oxy} carbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate	
1288	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(3 <i>R</i> )-1,1-dioxidotetrahydro-3-thienyl]oxy} carbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate	
1290	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{[(3 <i>R</i> )-tetrahydro-3-thienyloxy]carbonyl}alaninate	
1292	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(cyclopentyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate	
1294	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(cyclohexyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate	
1296	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[(tetrahydro-2 <i>H</i> -pyran-4-yloxy)carbonyl]alaninate	
1298		
1300		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(1-(methylsulfonyl)piperidin-4-yl)oxy]carbonyl}-3-[(1-propylbutyl)sulfonyl]alaninate
1302		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(1-acetylpiperidin-4-yl)oxy]carbonyl}-3-[(1-propylbutyl)sulfonyl]alaninate



1304		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(2 <i>R</i> )-5-oxopyrrolidin-2-yl]methoxy}carbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1306		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[(2 <i>S</i> )-5-oxopyrrolidin-2-yl]methoxy}carbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1308		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(2-methoxyethoxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1310		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(butyl)sulfonyl]alaninate
1312	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl <i>N</i> -[(benzyloxy)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate	
1314	<i>N</i> -{[(1 <i>S</i> ,2 <i>R</i> )-1-benzyl-2-hydroxy-3-[(3-methoxybenzyl)amino]propyl}-2-hydroxy-4-(phenylsulfonyl)butanamide hydrochloride	
1316	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> <sup>2</sup> -[(benzyloxy)carbonyl]- <i>N</i> <sup>5</sup> , <i>N</i> <sup>5</sup> -dipropyl-L-glutamate	
1318	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> <sup>2</sup> -[(benzyloxy)carbonyl]- <i>N</i> <sup>5</sup> , <i>N</i> <sup>5</sup> -dipropyl-D-glutamate	

1320	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(3,3,3-trifluoropropanoyl)-D-alaninate
1322	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(trifluoroacetyl)-D-alaninate
1324	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl <i>N</i> -acetyl-3-(butylsulfonyl)-D-alaninate
1326	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -isonicotinoyl-D-alaninate
1328	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(cyclopropylcarbonyl)-D-alaninate
1330	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl $\beta$ -alanyl-3-(butylsulfonyl)-D-alaninate
1332	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl glycyl-3-(butylsulfonyl)-D-alaninate
1334	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl <i>N,N</i> -dimethylglycyl-3-(butylsulfonyl)-D-alaninate
1336	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl <i>N,N</i> -dimethyl- $\beta$ -alanyl-3-(butylsulfonyl)-D-alaninate
1338	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(methoxyacetyl)-D-alaninate
1340	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(pyridin-3-ylcarbonyl)-D-alaninate
1342	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(2,4-dimethyl-1,3-thiazol-5-yl)carbonyl]-D-alaninate
1344	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[[3-(trifluoromethyl)-1 <i>H</i> -pyrazol-4-yl]carbonyl]-D-alaninate
1346	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-D-alaninate
1348	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(1 <i>H</i> -imidazol-4-ylcarbonyl)-D-alaninate
1350	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl (2 <i>R</i> )-5-hydroxy-2-[(methoxycarbonyl)amino]nonanoate
1352	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(6-hydroxypyridin-3-yl)carbonyl]-D-alaninate
1354	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl 3-

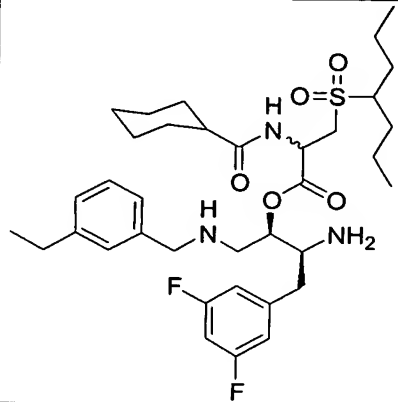
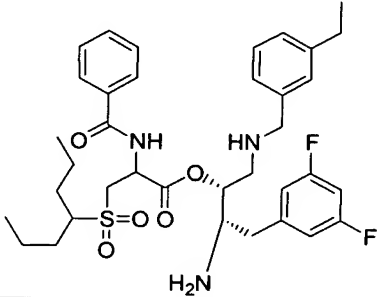
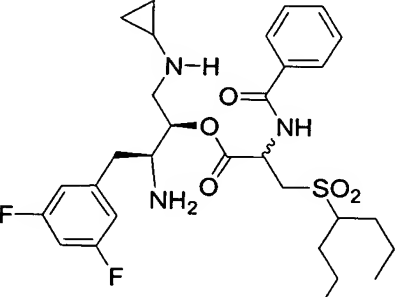
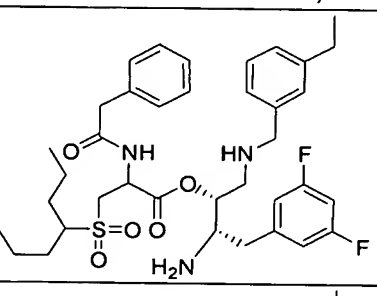
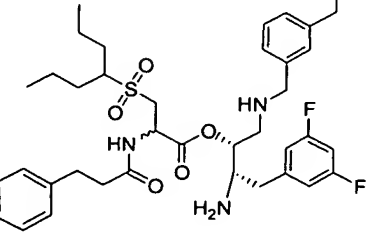
	(butylsulfonyl)- <i>N</i> -(pyridin-3-ylcarbonyl)- <i>D</i> -alaninate
1356	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-methylbutyl)amino}methyl}propyl <i>N</i> -acetyl-3-(butylsulfonyl)- <i>D</i> -alaninate
1358	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl <i>N</i> -(cyclopropylcarbonyl)-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1360	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-methylbutyl)amino}methyl}propyl <i>N</i> -acetyl-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1362	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -isonicotinoyl-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1364	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -[(5-bromopyridin-3-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1366	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -[(5-chloropyridin-3-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1368	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -(3-fluorobenzoyl)-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1370	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -[(5-methylpyridin-3-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1372	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -phenylglycyl-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1374	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -{{3-(trifluoromethyl)-1 <i>H</i> -pyrazol-4-yl}carbonyl}- <i>D</i> -alaninate
1376	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1378	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(1,3-thiazol-4-ylcarbonyl)- <i>D</i> -alaninate
1380	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -[(1-acetyl piperidin-4-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1382	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -[4-(acetylamino)butanoyl]-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1384	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -acetyl- $\beta$ -alanyl-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1386	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino}methyl}propyl <i>N</i> -(chloroacetyl)-3-[(1-propylbutyl)sulfonyl]- <i>D</i> -alaninate
1388	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-

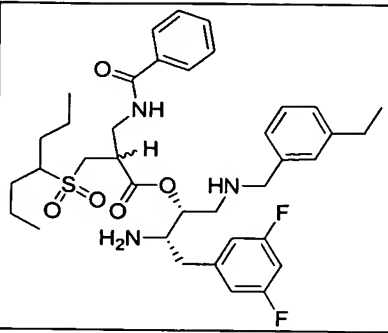
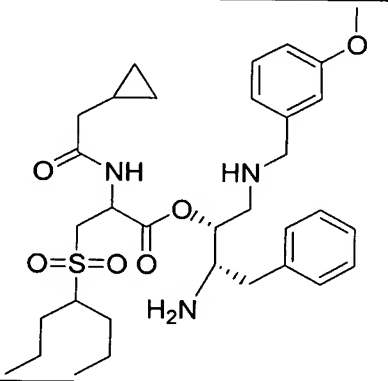
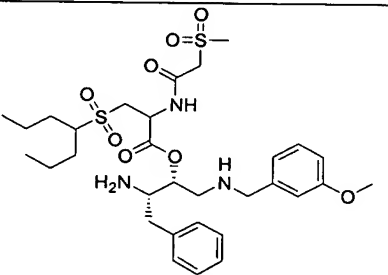
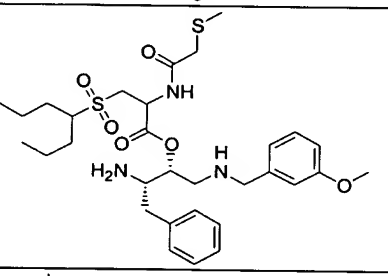
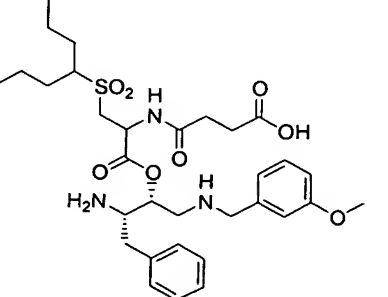
	ethylbenzyl)amino]methyl}propyl <i>N</i> -(methoxyacetyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1390	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(3-methoxypropanoyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1392	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(2,2-dimethylpropanoyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1394	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -isobutyryl-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1396	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -butyryl-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1398	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -acetyl-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1400	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(pyridin-3-ylcarbonyl)-D-alaninate
1402	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl <i>N</i> -isonicotinoyl-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1404	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl <i>N</i> -(3-hydroxybenzoyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1406	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(pyridin-3-ylcarbonyl)-D-alaninate
1408	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(3-hydroxybenzoyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1410	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(cyclopropylcarbonyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1412	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -propionyl-3-[(1-propylbutyl)sulfonyl]-D-alaninate
1414	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(pyridin-3-ylcarbonyl)alaninate
1416	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl <i>N</i> -(3-hydroxybenzoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1418	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl <i>N</i> -isonicotinoyl-3-[(1-propylbutyl)sulfonyl]alaninate
1420	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-

	ethylbenzyl)amino]methyl}propyl <i>N</i> -[(6-oxo-1,4,5,6-tetrahydropyridazin-3-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1422	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-oxo-D-prolyl-3-[(1-propylbutyl)sulfonyl]alaninate hydrochloride
1424	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 5-oxo-L-prolyl-3-[(1-propylbutyl)sulfonyl]alaninate
1426	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[3-(4-oxo-2-thioxo-1,3-thiazolidin-3-yl)propanoyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1428	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(piperidin-4-ylcarbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1430	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(2,4-dimethyl-1,3-thiazol-5-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1432	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -{[2-methyl-4-(trifluoromethyl)-1,3-thiazol-5-yl]carbonyl}-3-[(1-propylbutyl)sulfonyl]alaninate
1434	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(3,5-dimethylisoxazol-4-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1436	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1438	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(1 <i>H</i> -pyrazol-4-ylcarbonyl)alaninate
1440	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(1 <i>H</i> -imidazol-5-ylcarbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1442	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(1 <i>H</i> -imidazol-4-ylacetyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1444	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(pyrazin-2-ylcarbonyl)alaninate
1446	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -(2,6-dihydroxyisonicotinoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1448	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(6-hydroxypyridin-3-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1450	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl <i>N</i> -[(6-chloropyridin-3-yl)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1452	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-

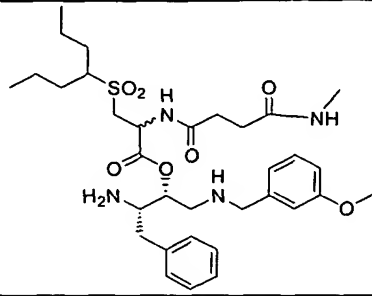
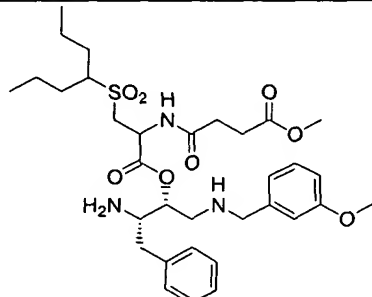
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Pharmacia No. 01182.US1  
Elan No. 00419-US-NEW

	ethylbenzyl)amino]methyl} propyl <i>N</i> -isonicotinoyl-3-[(1-propylbutyl)sulfonyl]alaninate
1454	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(pyridin-3-ylcarbonyl)alaninate
1456	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(pyridin-2-ylcarbonyl)alaninate
1458	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(1 <i>H</i> -indol-6-ylcarbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate hydrochloride
1460	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -(3,4,5-trimethoxybenzoyl)alaninate
1462	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(2-methylbenzoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1464	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(3-hydroxybenzoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1466	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(3-methylbenzoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1468	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(3-ethylbenzoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1470	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(3-chlorobenzoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1472	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[4-(trifluoromethyl)benzoyl]alaninate
1474	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl <i>N</i> -(4-methoxybenzoyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1476	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[ (3-ethylbenzyl)amino]methyl} propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[4-(trifluoromethyl)benzoyl]alaninate

1478		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl <i>N</i> -(cyclohexylcarbonyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1480		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl <i>N</i> -benzoyl-3-[(1-propylbutyl)sulfonyl]alaninate
1482		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl <i>N</i> -benzoyl-3-[(1-propylbutyl)sulfonyl]alaninate
1484		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl <i>N</i> -(phenylacetyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1486		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([(3-ethylbenzyl)amino]methyl)propyl <i>N</i> -(3-phenylpropanoyl)-3-[(1-propylbutyl)sulfonyl]alaninate

1488		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(benzoylamino)-2-{[(1-propylbutyl)sulfonyl]methyl}propanoate
1490		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl <i>N</i> -(cyclopropylacetyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1492		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl <i>N</i> -[(methylsulfonyl)acetyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1494		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl <i>N</i> -[(methylthio)acetyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1496		



1498		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl <i>N</i> -[4-(methylamino)-4-oxobutanoyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1500		
1502		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl <i>N</i> -(methylsulfonyl)glycyl-3-[(1-propylbutyl)sulfonyl]alaninate
1504		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl <i>N</i> -acetyl-3-(phenylsulfonyl)alaninate
1506		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl (2 <i>S</i> )-2-[(4-methoxy-4-oxobutanoyl)amino]-5-oxo-5-piperidin-1-ylpentanoate
1508		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl (2 <i>R</i> )-2-[(benzyloxy)carbonyl]amino]-5-oxo-5-piperidin-1-ylpentanoate
1510		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl (2 <i>R</i> )-2-[(3-ethoxy-3-oxopropanoyl)amino]-5-oxo-5-piperidin-1-ylpentanoate
1512		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl <i>N</i> <sup>2</sup> -(4-methoxy-4-oxobutanoyl)- <i>N</i> <sup>5</sup> , <i>N</i> <sup>5</sup> -dipropyl-D-glutamate
1514		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl (2 <i>R</i> )-2-[(4-methoxy-4-oxobutanoyl)amino]-5-oxo-5-piperidin-1-ylpentanoate
1516		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl (2 <i>R</i> )-2-[(5-methoxy-5-oxopentanoyl)amino]-5-oxo-5-piperidin-1-ylpentanoate
1518		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 2-(acetyloxy)-3-(butylsulfonyl)propanoate
1520		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl <i>S</i> -butyl-D-cysteinate
1522		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-(butylsulfinyl)-D-alaninate
1524		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-(butylsulfonyl)-D-alaninate
1526		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-ethylbenzyl)amino]methyl]propyl 3-(butylsulfonyl)-L-alaninate
1528		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-methylbutyl)amino]methyl]propyl 3-(butylsulfonyl)-D-alaninate
1530		(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-ethylphenyl)cyclopropyl]amino)methylpropyl 3-[(1-propylbutyl)sulfonyl]-D-alaninate

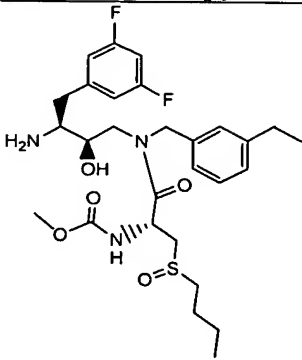
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 Pharmacia No. 01182.US1  
 Elan No. 00419-US-NEW

1532	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-[(1-propylbutyl)sulfonyl]-L-alaninate
1534	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[(cyclopropylamino)methyl]-3-(3,5-difluorophenyl)propyl 3-[(1-propylbutyl)sulfonyl]-D-alaninate
1536	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-methylbutylamino]methyl]propyl 3-[(1-propylbutyl)sulfonyl]-D-alaninate
1538	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-[(1-propylbutyl)sulfonyl]-D-alaninate
1540	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-[(1-propylbutyl)sulfonyl]alaninate
1542	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -(phenoxyacetyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1544	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -[[5-chloro-2-thienyl]thio]peroxy-3-[(1-propylbutyl)sulfonyl]alaninate
1546	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl <i>N</i> -(phenylsulfonyl)-3-[(1-propylbutyl)sulfonyl]alaninate
1548	(1 <i>R</i> ,2 <i>S</i> )-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]-2-(methylamino)propyl <i>N</i> -[(benzylamino)carbonyl]-3-[(1-propylbutyl)sulfonyl]alaninate
1550	4-[[[(1 <i>R</i> ,2 <i>S</i> )-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]-2-(methylamino)propyl]oxy]-4-oxo-3-[[[(1-propylbutyl)sulfonyl]methyl]butanoic acid
1552	4-[[[(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-methoxybenzylamino]methyl]-3-phenylpropyl]oxy]-3-[[3-methylbutyl)sulfonyl]methyl]-4-oxobutanoic acid
1554	1-[(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-methoxybenzylamino]methyl]-3-phenylpropyl] 4-methyl 2-[[3-methylbutyl)sulfonyl]methyl]succinate
1556	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-methoxybenzylamino]methyl]-3-phenylpropyl 4-amino-2-[[3-methylbutyl)sulfonyl]methyl]-4-oxobutanoate
1558	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-methoxybenzylamino]methyl]-3-phenylpropyl 4-(methylamino)-2-[[3-methylbutyl)sulfonyl]methyl]-4-oxobutanoate
1560	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-methoxybenzylamino]methyl]-3-phenylpropyl 4-(dimethylamino)-2-[[3-methylbutyl)sulfonyl]methyl]-4-oxobutanoate
1562	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)-2-[[3-methylbutyl)sulfonyl]methyl]propanoate
1564	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)-2-[[3-methylbutyl)sulfonyl]methyl]propanoate
1566	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[3-ethylbenzylamino]methyl]propyl 3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)-2-[[3-methylbutyl)sulfonyl]methyl]propanoate
1568	(1 <i>R</i> ,2 <i>R</i> )-2-amino-1-[[3-methoxybenzylamino]methyl]-3-phenylpropyl 3-(ethylsulfonyl)-2-[[3-isobutylsulfonyl]amino]methyl]propanoate
1570	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[3-methoxybenzylamino]methyl]-3-phenylpropyl 3-(ethylthio)-2-[[3-isobutylsulfonyl]amino]methyl]propanoate

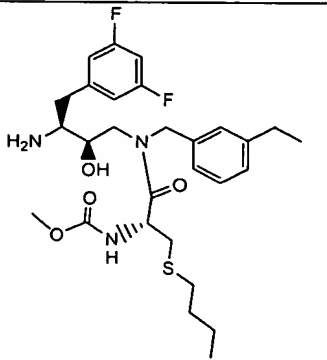
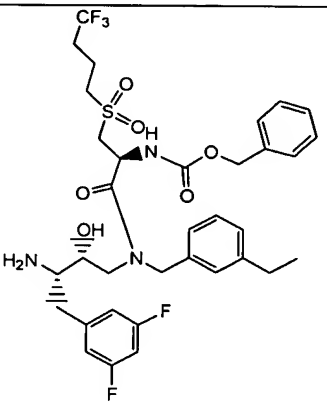
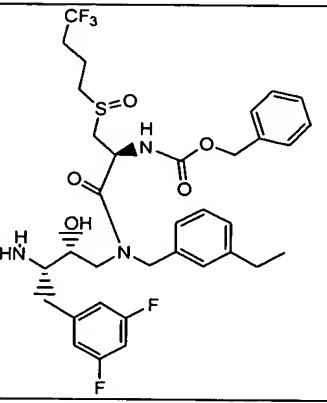
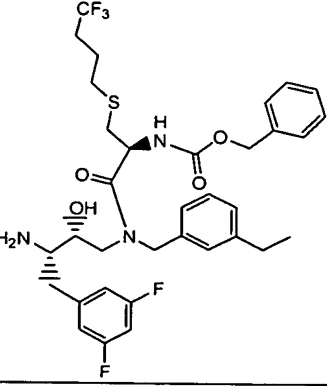
1572	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl (2 <i>S</i> )-2-{{[(3-methylbutyl)sulfonyl]amino}-4-(methylsulfonyl)butanoate
1574	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl <i>N</i> -[(3-methylbutyl)sulfonyl]- <i>L</i> -methioninate
1576	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 3-(acetylthio)-2-{{[(3-methylbutyl)sulfonyl]methyl}propanoate
1578	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-hydroxy-3-[(1-propylbutyl)sulfonyl]propanoate
1580	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-hydroxy-3-[(3-methylbutyl)sulfonyl]propanoate
1582	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-hydroxy-3-[(3-methoxyphenyl)sulfonyl]propanoate
1584	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 2-hydroxy-4-(phenylsulfonyl)butanoate
1586	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-hydroxy-4-[(3-methylbutyl)sulfonyl]butanoate
1588	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 4-[(3-methylbutyl)sulfonyl]-2-phenoxybutanoate
1590	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-(3-methoxyphenoxy)-4-[(3-methylbutyl)sulfonyl]butanoate
1592	3-{1-{{[(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl)oxy]carbonyl}-3-[(3-methylbutyl)sulfonyl]propoxy}benzoic acid
1594	methyl 3-{1-{{[(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl)oxy]carbonyl}-3-[(3-methylbutyl)sulfonyl]propoxy}benzoate
1596	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-hydroxy-4-(phenylsulfonyl)butanoate
1598	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-hydroxy-4-(phenylthio)butanoate
1600	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-methoxy-4-(phenylsulfonyl)butanoate
1602	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-methoxy-4-(phenylthio)butanoate
1604	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 4-(phenylsulfonyl)-2-propoxybutanoate
1606	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl 2-(benzyloxy)-4-(phenylsulfonyl)butanoate
1608	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl <i>N</i> -[(benzyloxy)carbonyl]methioninate
1610	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl (2 <i>S</i> )-2-amino-5-oxo-5-piperidin-1-ylpentanoate
1612	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl (2 <i>S</i> )-2-[(2-methoxy-2-oxoethyl)amino]-5-oxo-5-piperidin-1-ylpentanoate
1614	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl (2 <i>R</i> )-2-amino-5-oxo-5-piperidin-1-ylpentanoate
1616	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl (2 <i>R</i> )-2-[(2-ethoxy-2-oxoethyl)amino]-5-oxo-5-piperidin-1-ylpentanoate
1618	(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-{{[(3-methoxybenzyl)amino]methyl}-3-phenylpropyl (2 <i>R</i> )-2-[(4-ethoxy-4-oxobutyl)amino]-5-oxo-5-piperidin-1-ylpentanoate

1620	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-2-[(methoxycarbonyl)amino]-4-oxooctanoate
1622	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl 4-butyl- <i>N</i> -(methoxycarbonyl)-D-homoserinate
1624	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl 3-(2-butyl-1,3-dioxolan-2-yl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1626	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl 3-(2-butyl-1,3-dioxan-2-yl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1628	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4,4-difluoro-2-[(methoxycarbonyl)amino]octanoate
1630	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4-fluoro-2-[(methoxycarbonyl)amino]octanoate
1632	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-2-[(methoxycarbonyl)amino]-5-oxononanoate
1634	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-5-hydroxy-2-[(methoxycarbonyl)amino]nonanoate
1636	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4-(2-butyl-1,3-dioxolan-2-yl)-2-[(methoxycarbonyl)amino]butanoate
1638	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4-(2-butyl-1,3-dioxan-2-yl)-2-[(methoxycarbonyl)amino]butanoate
1640	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-5-fluoro-2-[(methoxycarbonyl)amino]nonanoate
1642	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-5,5-difluoro-2-[(methoxycarbonyl)amino]nonanoate
1644	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethynylbenzyl)amino)methyl}propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1646	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1648	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1650	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethynylphenyl)cyclopropyl]amino}methyl)propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1652	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-[3-

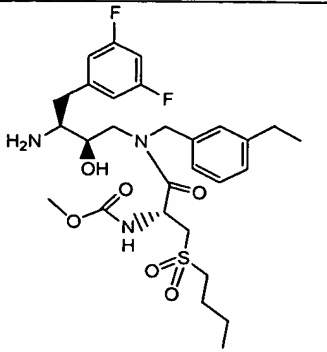
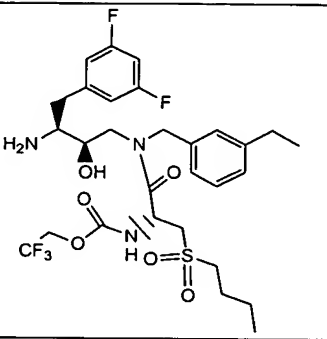
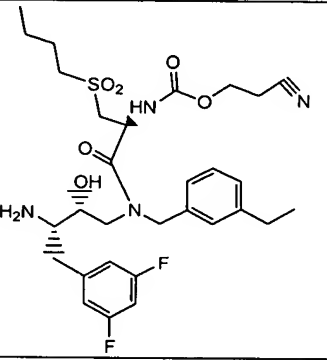
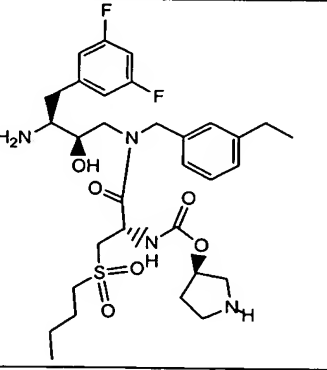
	(trifluoromethyl)phenyl]cyclopropyl} amino)methyl]propyl 3-(butylsulfonyl)- <i>N</i> -(methoxycarbonyl)-D-alaninate
1654	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-D-alaninate
1656	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-(butylsulfonyl)- <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-D-alaninate
1658	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl 3-(butylsulfonyl)- <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-D-alaninate
1660	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethynylphenyl)cyclopropyl]amino}methyl)propyl 3-(butylsulfonyl)- <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-D-alaninate
1662	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[(1-[3-(trifluoromethyl)phenyl]cyclopropyl} amino)methyl]propyl 3-(butylsulfonyl)- <i>N</i> -[(3-methyl-1 <i>H</i> -pyrazol-5-yl)carbonyl]-D-alaninate
1664	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-2-{{(methylamino)carbonyl}amino}-4-oxooctanoate
1666	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl 4-butyl- <i>N</i> -[(methylamino)carbonyl]-D-homoserinate
1668	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl 3-(2-butyl-1,3-dioxolan-2-yl)- <i>N</i> -[(methylamino)carbonyl]-D-alaninate
1670	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl 3-(2-butyl-1,3-dioxan-2-yl)- <i>N</i> -[(methylamino)carbonyl]-D-alaninate
1672	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4,4-difluoro-2-{{(methylamino)carbonyl}amino}octanoate
1674	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4-fluoro-2-{{(methylamino)carbonyl}amino}octanoate
1676	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-2-{{(methylamino)carbonyl}amino}-5-oxononanoate
1678	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-5-hydroxy-2-{{(methylamino)carbonyl}amino}nonanoate
1680	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4-(2-butyl-1,3-dioxolan-2-yl)-2-{{(methylamino)carbonyl}amino}butanoate
1682	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-ethylbenzyl)amino)methyl}propyl (2 <i>R</i> )-4-(2-butyl-1,3-dioxan-2-yl)-2-{{(methylamino)carbonyl}amino}butanoate
1684	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{{(3-

	ethylbenzyl)amino]methyl}propyl (2 <i>R</i> )-5-fluoro-2- {[(methylamino)carbonyl]amino}nonanoate
1686	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[(3-ethylbenzyl)amino]methyl}propyl (2 <i>R</i> )-5,5-difluoro-2- {[(methylamino)carbonyl]amino}nonanoate
1688	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[(3-ethynylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> - [(methylamino)carbonyl]- <i>D</i> -alaninate
1690	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [3-(trifluoromethyl)benzyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> - [(methylamino)carbonyl]- <i>D</i> -alaninate
1692	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [1-(3-ethylphenyl)cyclopropyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> - [(methylamino)carbonyl]- <i>D</i> -alaninate
1694	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [1-(3-ethynylphenyl)cyclopropyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> - [(methylamino)carbonyl]- <i>D</i> -alaninate
1696	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [1-[3-(trifluoromethyl)phenyl]cyclopropyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> - [(methylamino)carbonyl]- <i>D</i> -alaninate
1698	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- {[(3-ethynylbenzyl)amino]methyl}propyl 3-(butylsulfonyl)- <i>N</i> -[(4-methyl-1 <i>H</i> -pyrazol-1-yl)carbonyl]- <i>D</i> -alaninate
1700	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [3-(trifluoromethyl)benzyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> -[(4-methyl-1 <i>H</i> -pyrazol-1-yl)carbonyl]- <i>D</i> -alaninate
1702	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [1-(3-ethylphenyl)cyclopropyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> -[(4-methyl-1 <i>H</i> -pyrazol-1-yl)carbonyl]- <i>D</i> -alaninate
1704	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [1-(3-ethynylphenyl)cyclopropyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> -[(4-methyl-1 <i>H</i> -pyrazol-1-yl)carbonyl]- <i>D</i> -alaninate
1706	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1- ( { [1-[3-(trifluoromethyl)phenyl]cyclopropyl]amino } methyl)propyl 3-(butylsulfonyl)- <i>N</i> - [(4-methyl-1 <i>H</i> -pyrazol-1-yl)carbonyl]- <i>D</i> -alaninate
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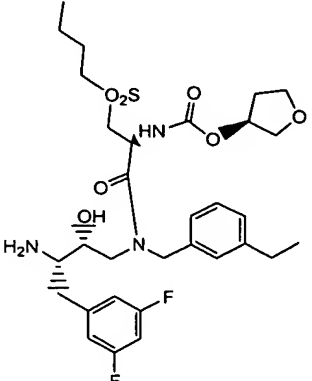
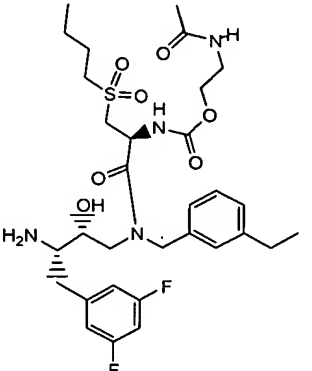
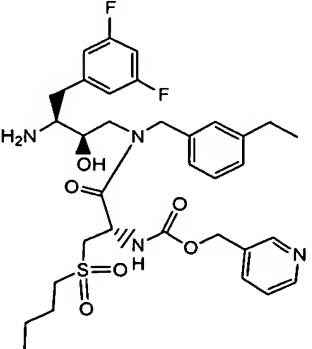
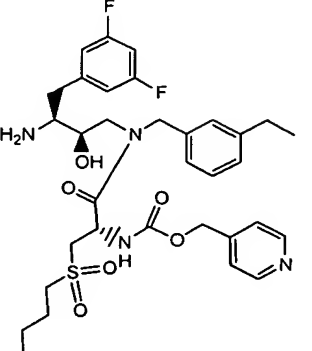
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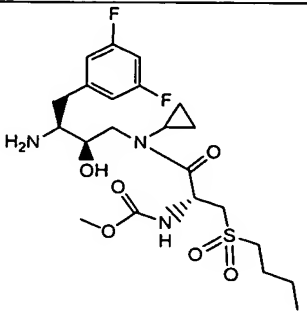
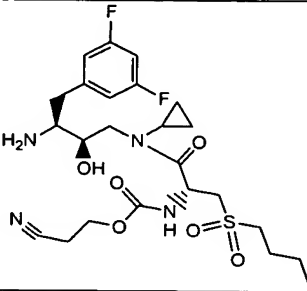
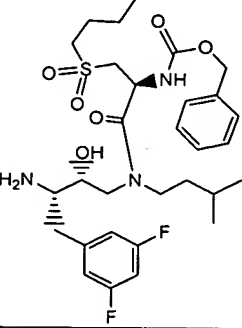
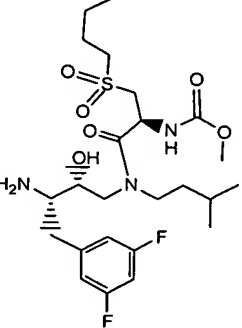
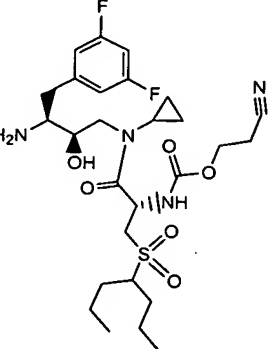
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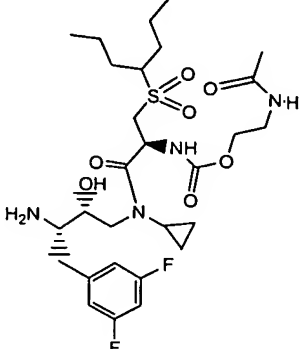
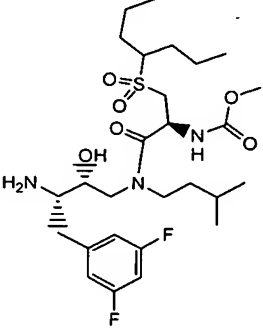
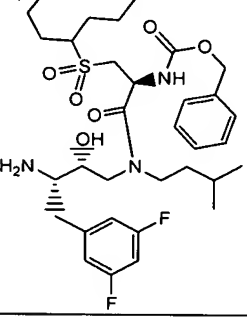
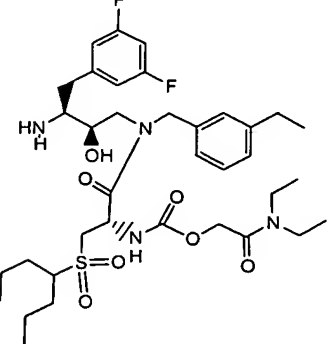
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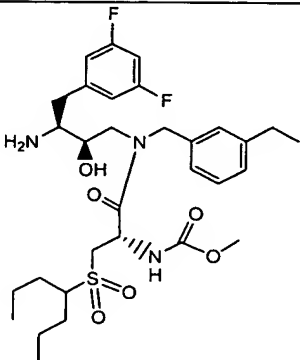
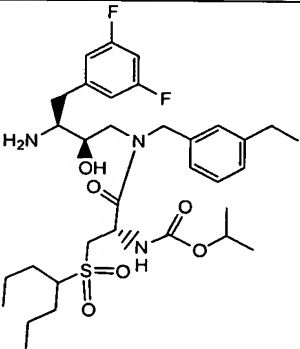
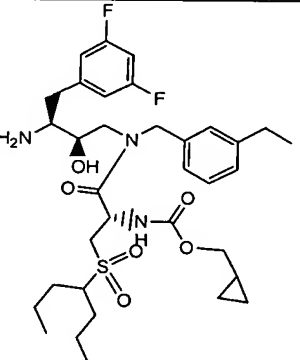
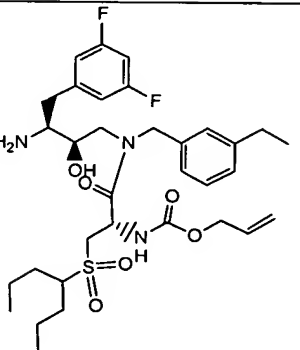
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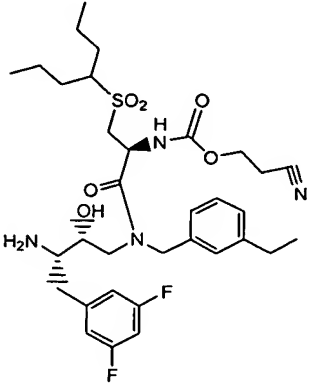
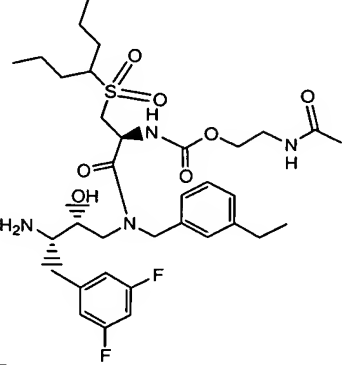
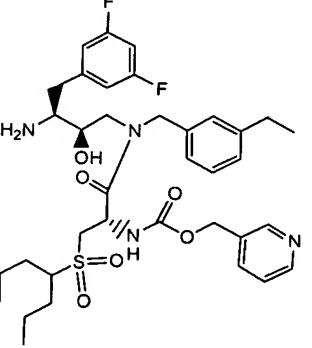
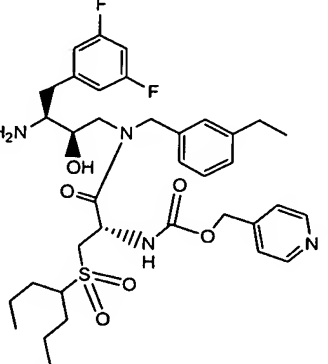
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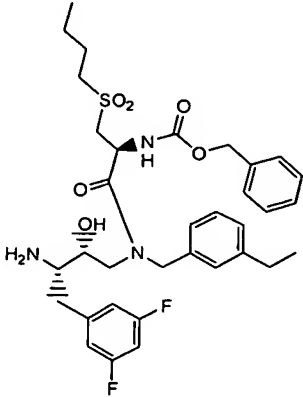
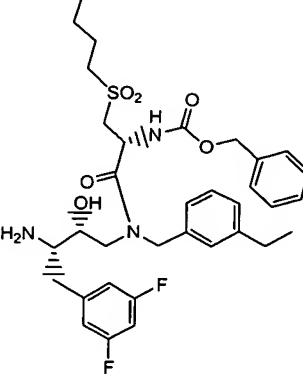
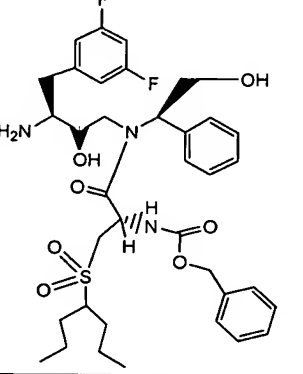
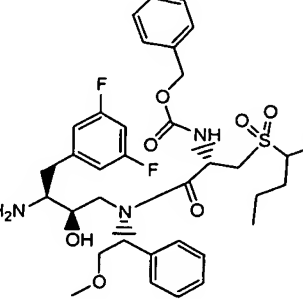
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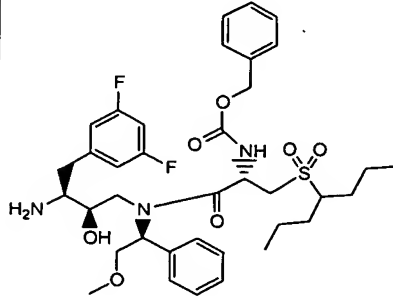
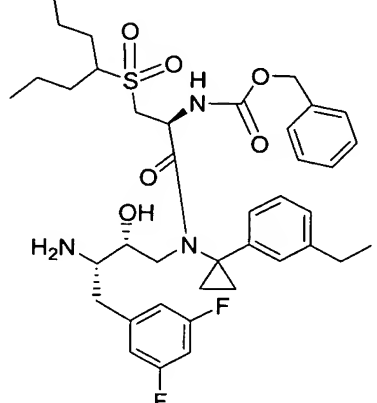
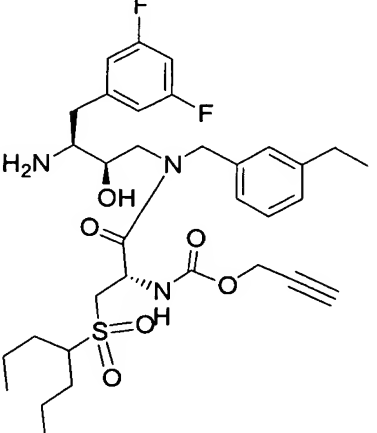
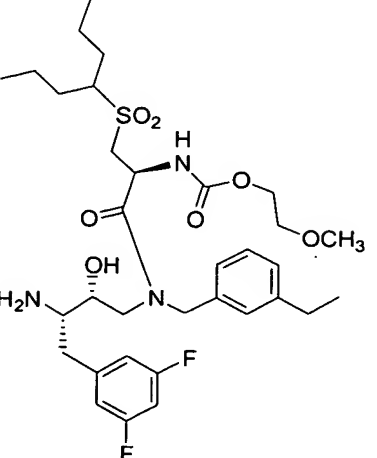
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1233	benzyl [(1 <i>R</i> )-1-{[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-3-(methylsulfonyl)propyl]carbamate	

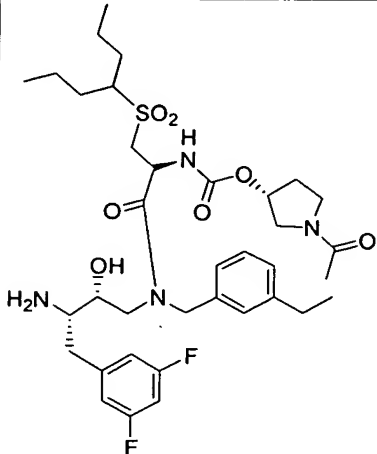
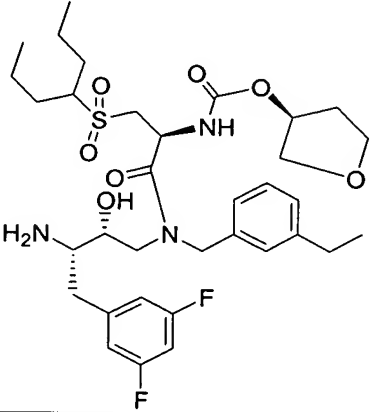
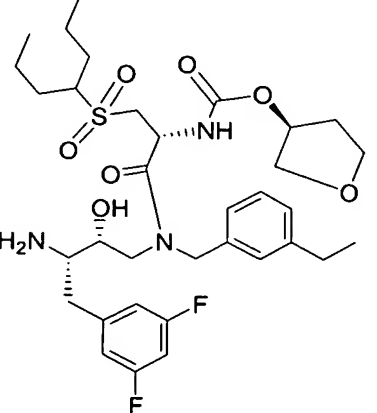
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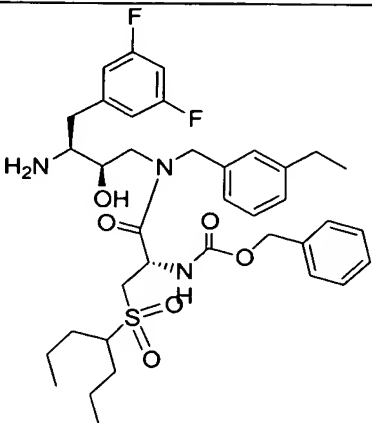
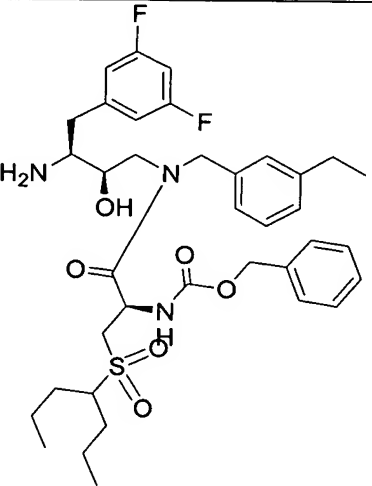
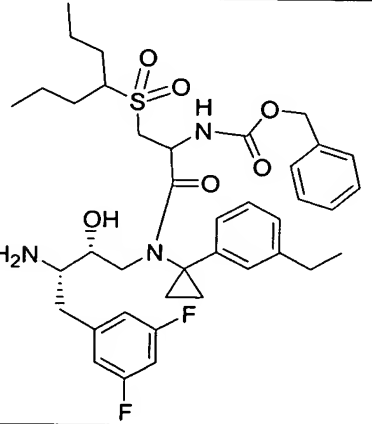
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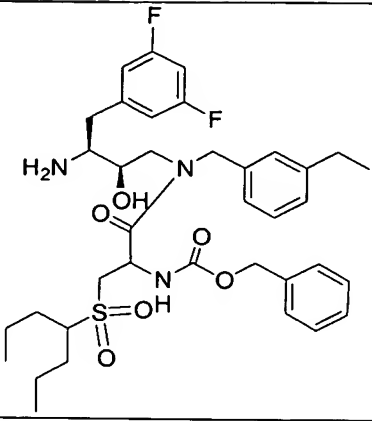
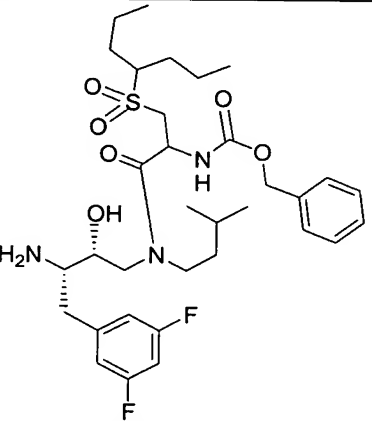
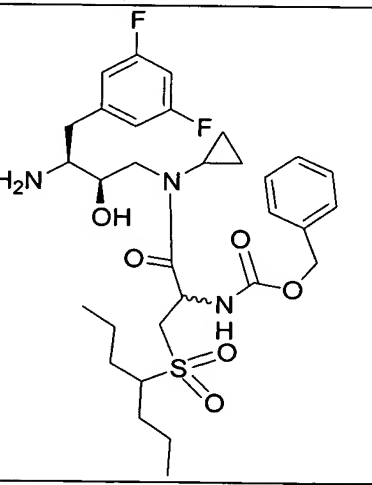
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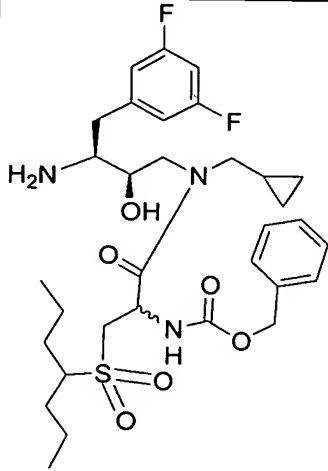
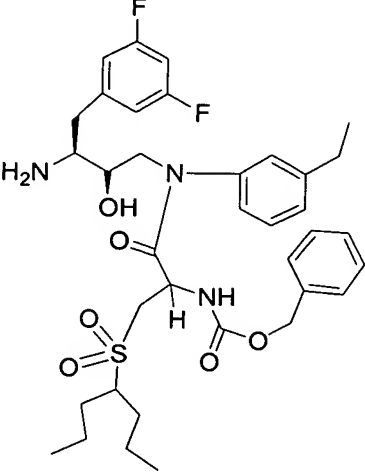
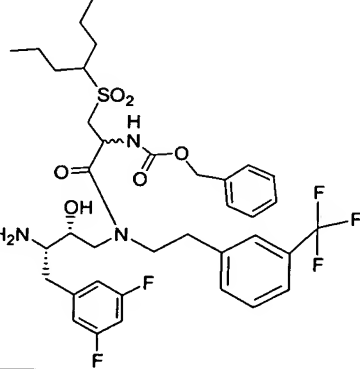
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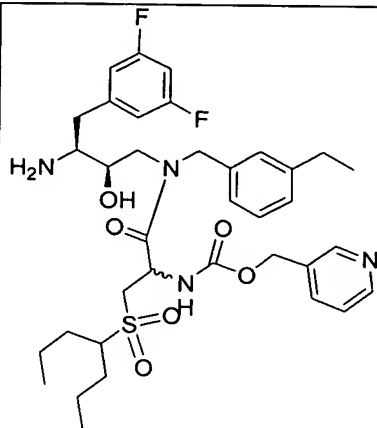
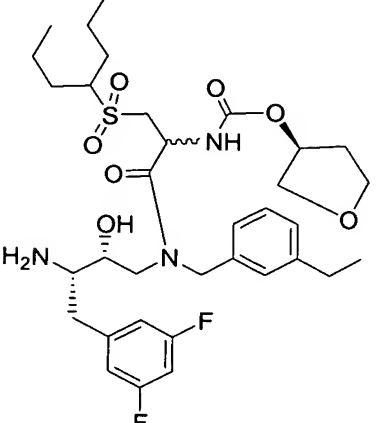
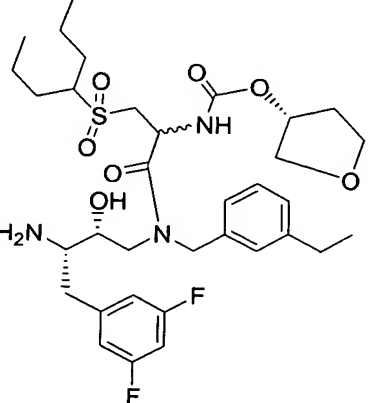
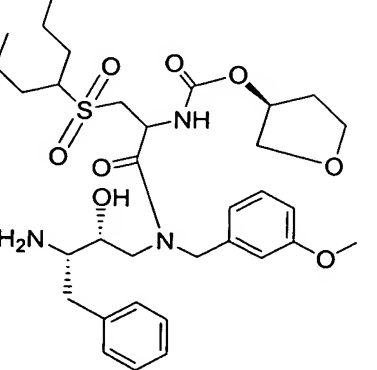
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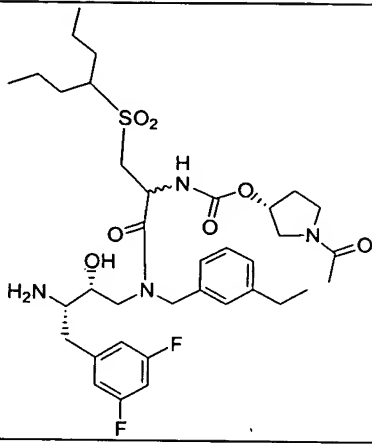
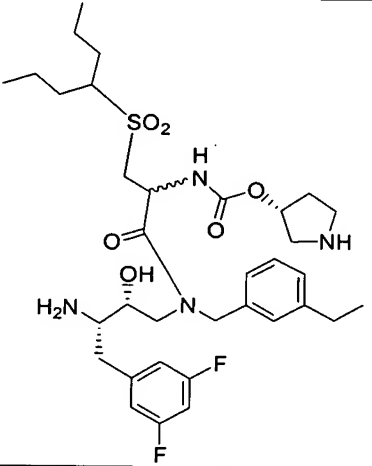
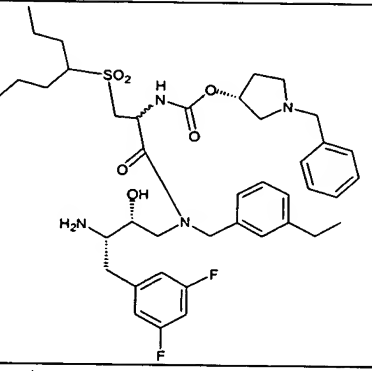
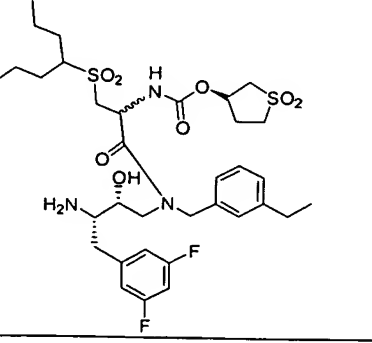
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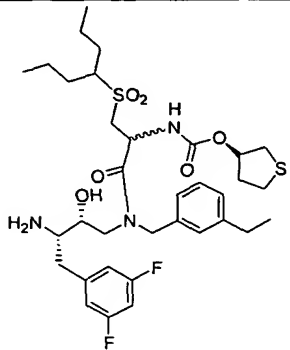
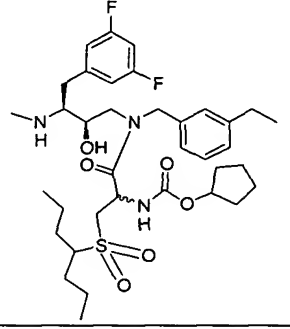
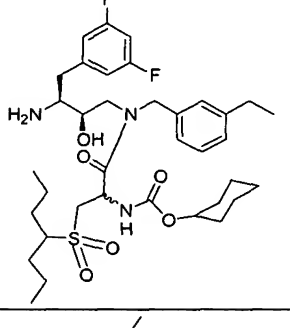
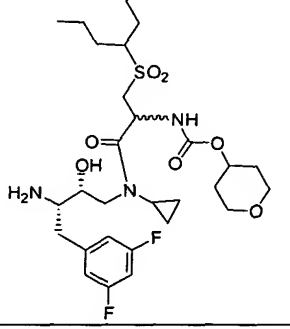
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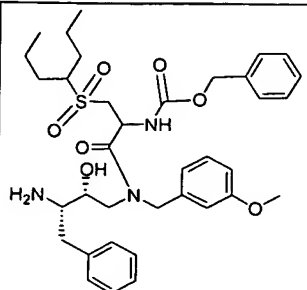
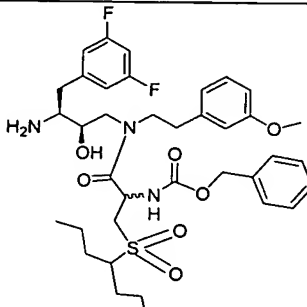
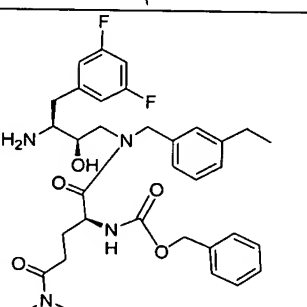
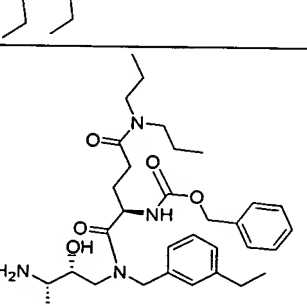
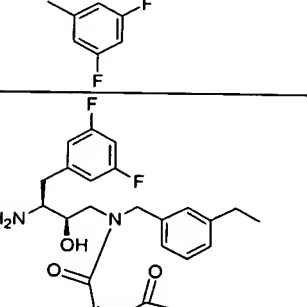
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1299	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-[(1-propylbutyl)sulfonyl]- <i>N</i> -[(tetrahydro-2 <i>H</i> -pyran-4-yloxy)carbonyl]alaninate	

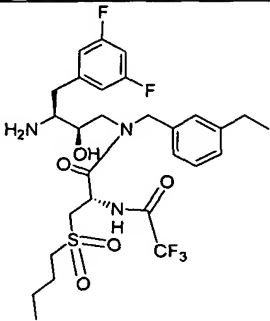
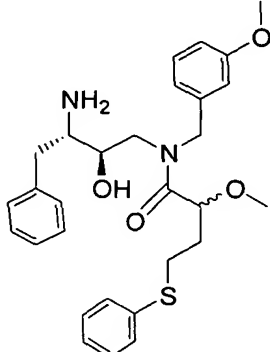
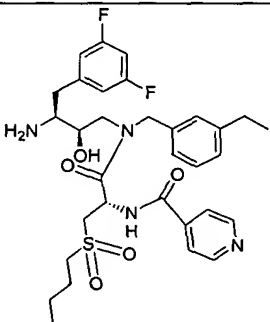
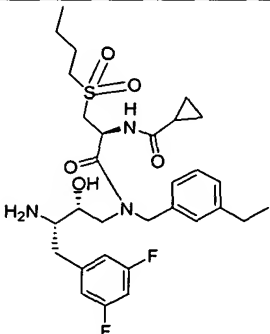
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1301		
1303	<i>S</i> -(3-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl](3-methoxybenzyl)amino]-2-[[[(3-methylbutyl)sulfonyl]methyl]-3-oxopropyl] ethanethioate	
1305		
1307		
1309	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-2-(3-methoxyphenoxy)-4-[(3-methylbutyl)sulfonyl]butanamide	
1311		

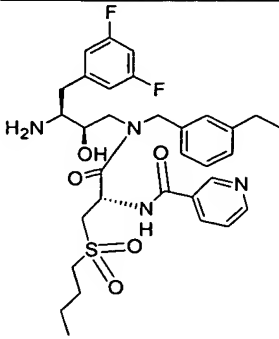
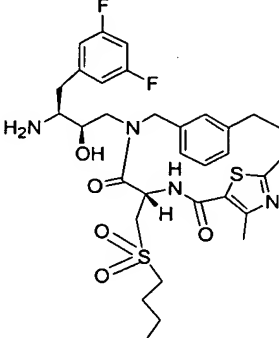
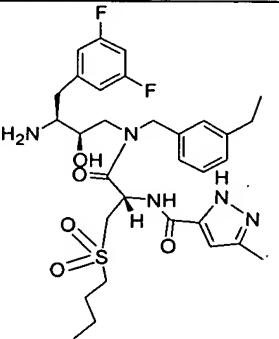
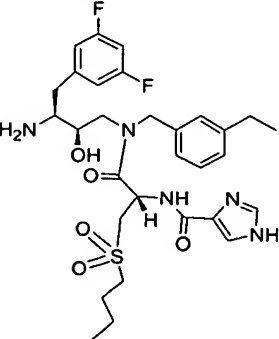
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 Pharmacia No. 01182.US1  
 Elan No. 00419-US-NEW

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1321		$N^1$ -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- $N^1$ -(3-ethylbenzyl)- $N^2$ -(3,3,3-trifluoropropanoyl)-D-alaninamide

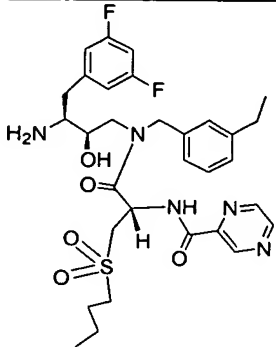
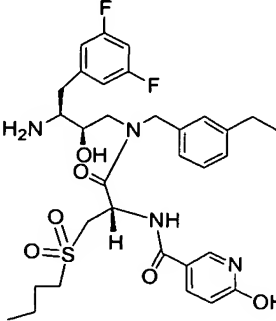
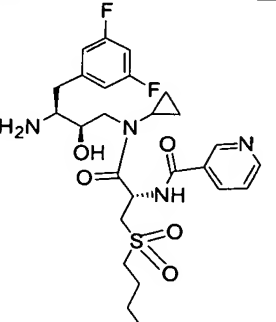
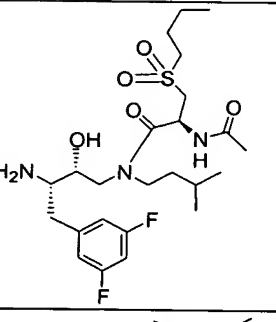
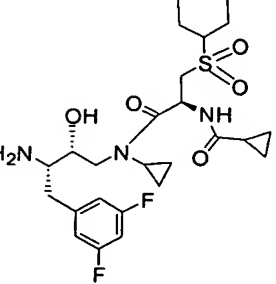


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1325		<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-methoxy- <i>N</i> -(3-methoxybenzyl)-4-(phenylthio)butanamide
1327		
1329		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>2</sup> -(cyclopropylcarbonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-D-alaninamide
1331		$\beta$ -alanyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-D-alaninamide
1333		glycyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-D-alaninamide
1335		(1 <i>R</i> ,2 <i>S</i> )-2-amino-1-[[[(3-methoxybenzyl)amino]methyl]-3-phenylpropyl (2 <i>R</i> )-2-[(4-ethoxy-4-oxobutyl)amino]-5-oxo-5-piperidin-1-yl]pentanoate
1337		<i>N,N</i> -dimethyl- $\beta$ -alanyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-D-alaninamide
1339		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)-

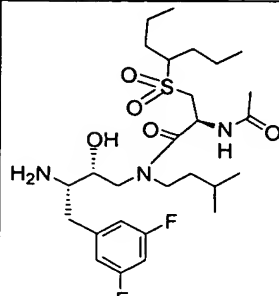
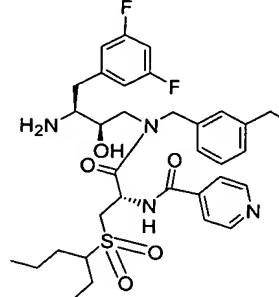
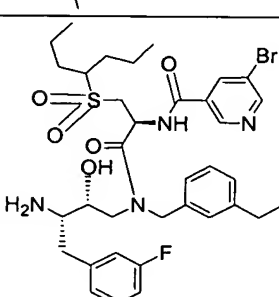
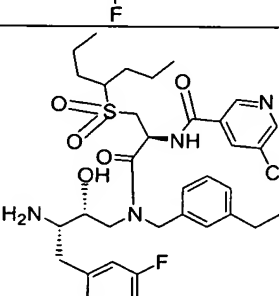
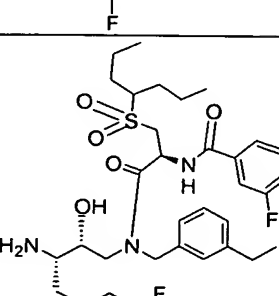
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	<i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(methoxyacetyl)-D-alaninamide	
1341		
1343		
1345	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-{[(3-ethylbenzyl)amino]methyl}propyl 3-(2-butyl-1,3-dioxan-2-yl)- <i>N</i> -(methoxycarbonyl)-D-alaninate	
1347		
1349		

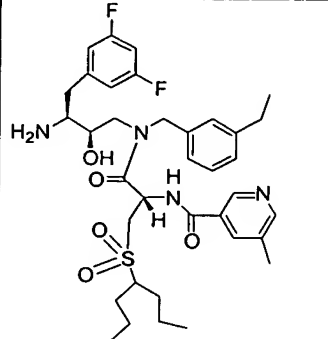
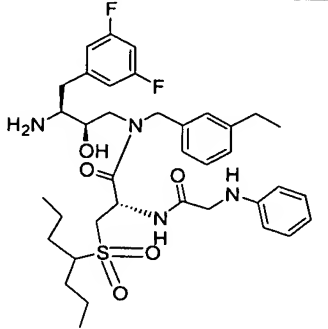
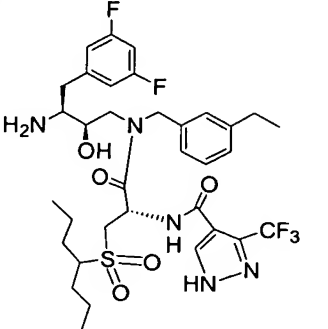
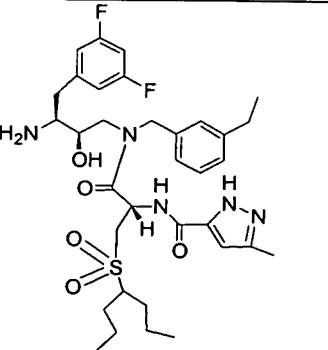
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1351		
1353		
1355		
1357		$N^2$ -acetyl- $N^1$ -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- $N^1$ -(3-methylbutyl)-D-alaninamide
1359		$N^1$ -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- $N^1$ -cyclopropyl- $N^2$ -(cyclopropylcarbonyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide

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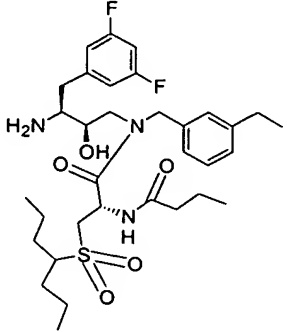
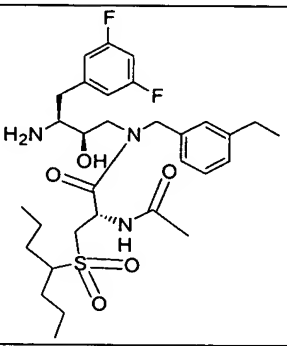
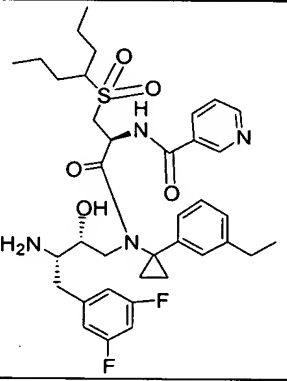
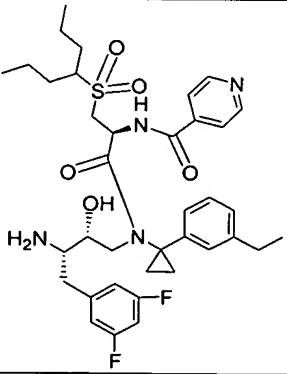
1361		<i>N</i> <sup>2</sup> -acetyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide
1363		
1365		
1367		
1369		

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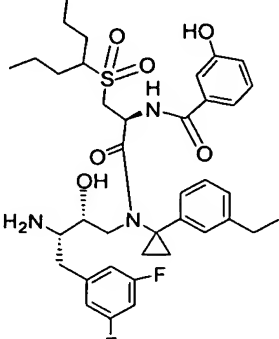
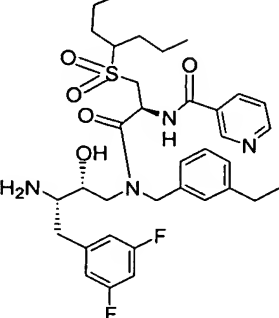
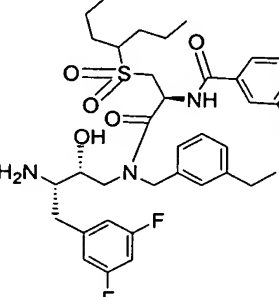
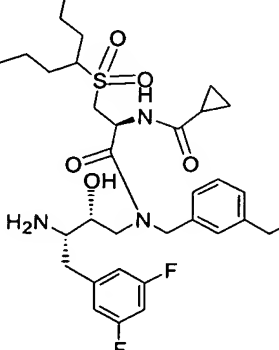
1371		
1373		<p><i>N</i>-phenylglycyl-<i>N</i><sup>1</sup>-[(2<i>R</i>,3<i>S</i>)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-<i>N</i><sup>1</sup>-(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide</p>
1375		
1377		

1379		
1381		
1383		
1385	<i>N</i> -acetyl- $\beta$ -alanyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide	
1387	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>2</sup> -(chloroacetyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide	
1389	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(methoxyacetyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide	
1391	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(3-methoxypropanoyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide	
1393	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>2</sup> -(2,2-dimethylpropanoyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide	
1395	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -isobutyryl-3-[(1-propylbutyl)sulfonyl]-D-alaninamide	

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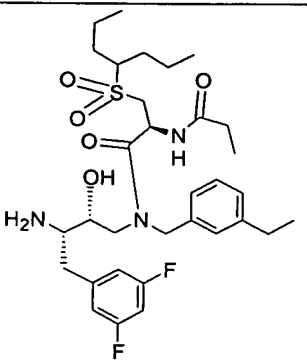
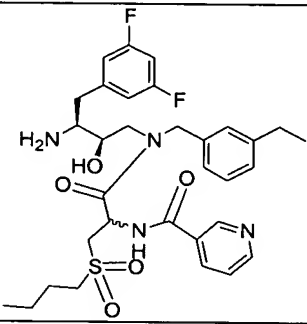
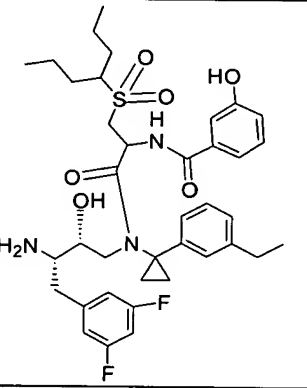
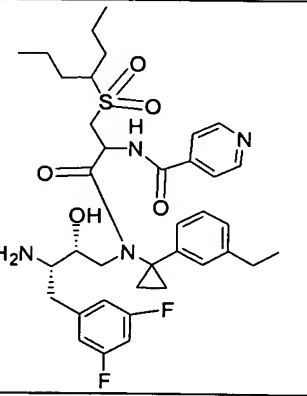
1397		
1399		$N^2$ -acetyl- $N^1$ -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- $N^1$ -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide
1401		
1403		

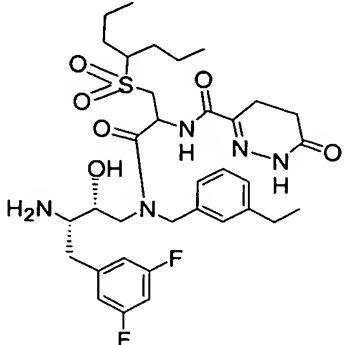
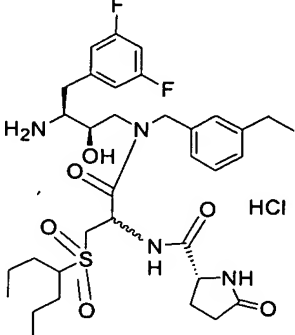
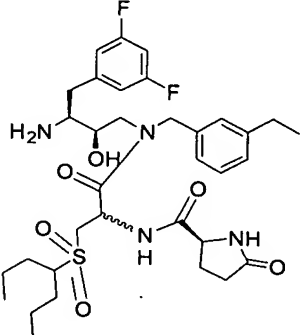
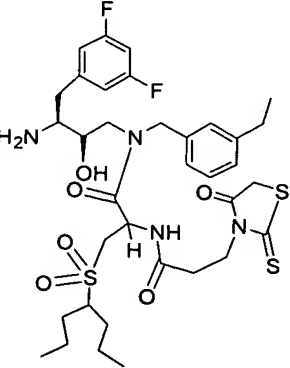
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 Pharmacia No. 01182.US1  
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1405		
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1411		<p><i>N</i><sup>1</sup>-[(2<i>R</i>,3<i>S</i>)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-<i>N</i><sup>2</sup>-(cyclopropylcarbonyl)-<i>N</i><sup>1</sup>-(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide</p>

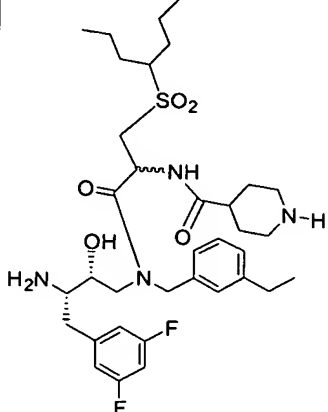
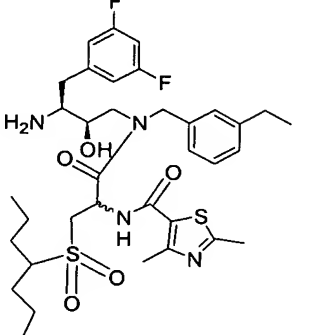
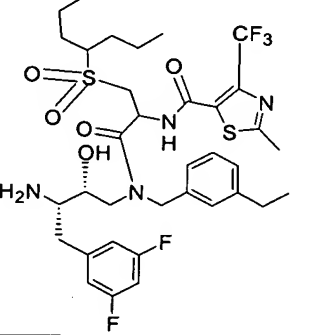
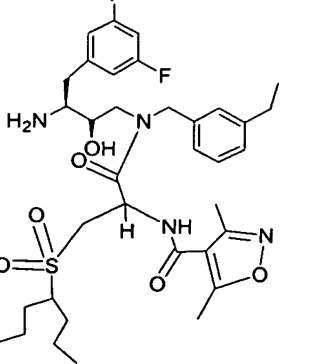


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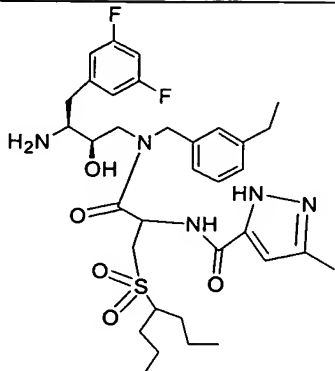
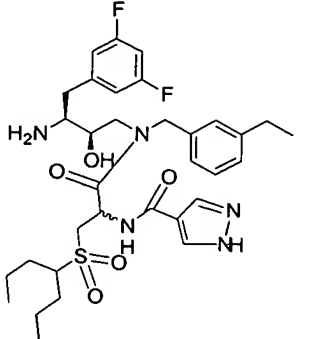
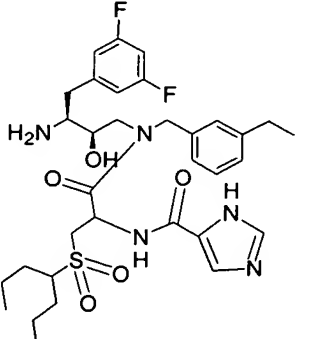
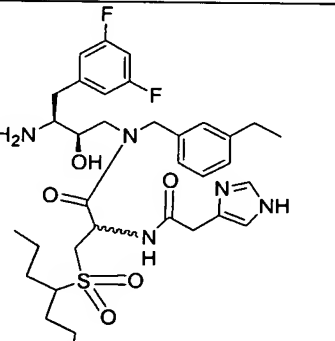
1413		$N^1$ -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- $N^1$ -(3-ethylbenzyl)- $N^2$ -propionyl-3-[(1-propylbutyl)sulfonyl]-D-alaninamide
1415		
1417		
1419		

1421		
1423		5-oxo-D-prolyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide hydrochloride
1425		5-oxo-L-prolyl- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide
1427		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -[3-(4-oxo-2-thioxo-1,3-thiazolidin-3-yl)propanoyl]-3-[(1-propylbutyl)sulfonyl]alaninamide

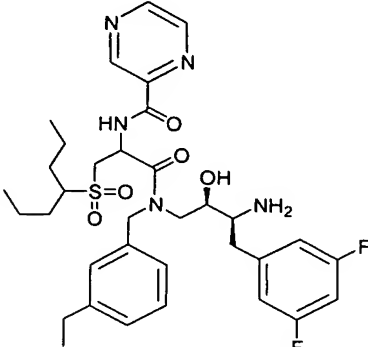
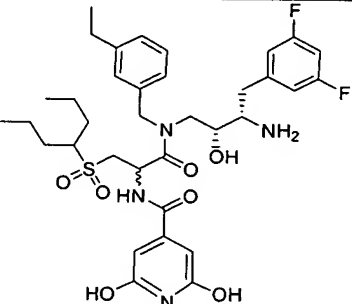
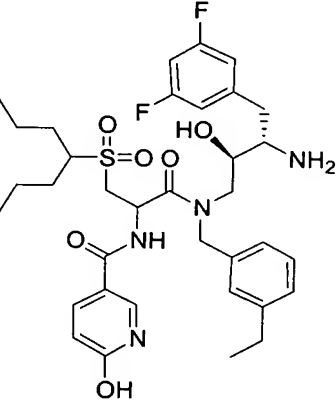
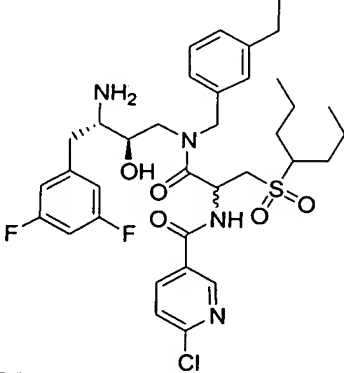
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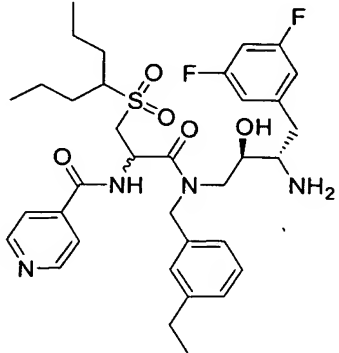
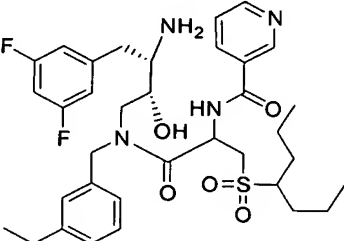
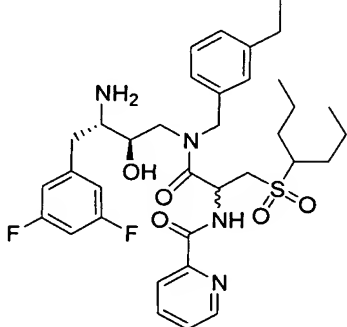
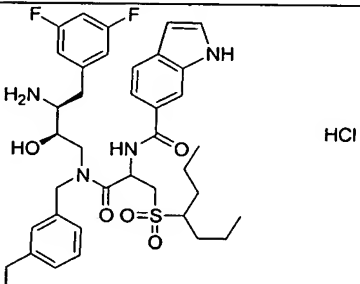
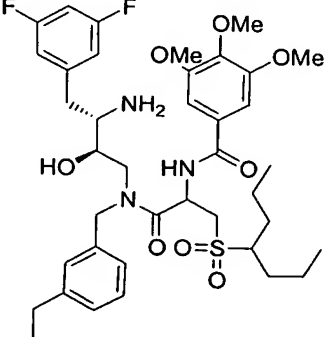
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1443		<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(1 <i>H</i> -imidazol-4-ylacetyl)-3-[(1-propylbutyl)sulfonyl]alaninamide

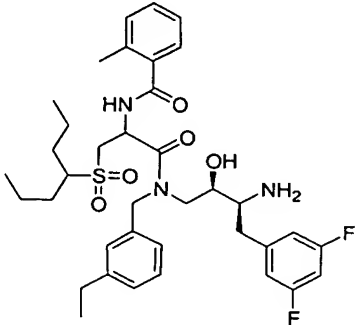
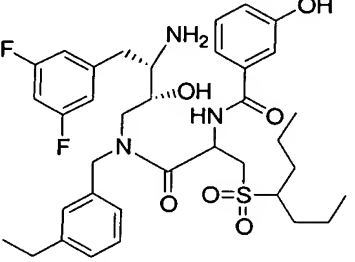
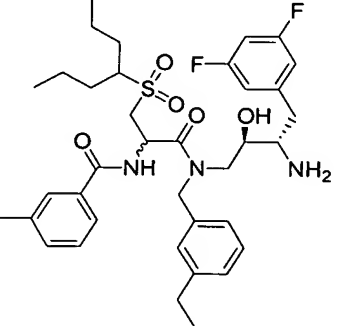
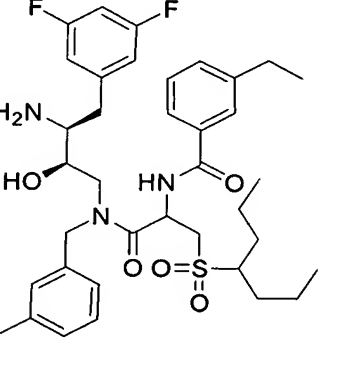
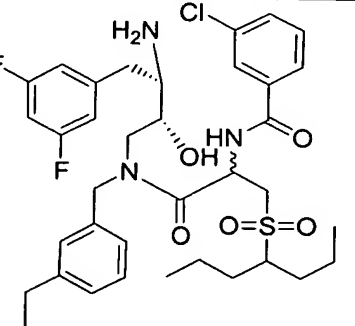
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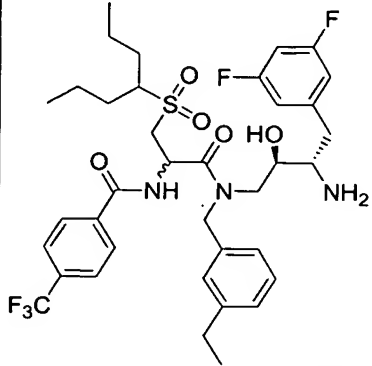
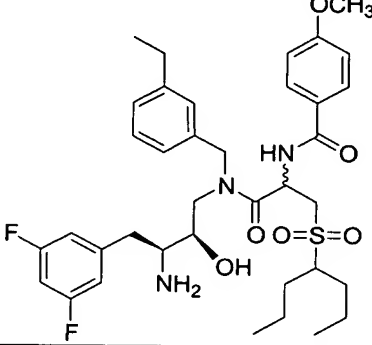
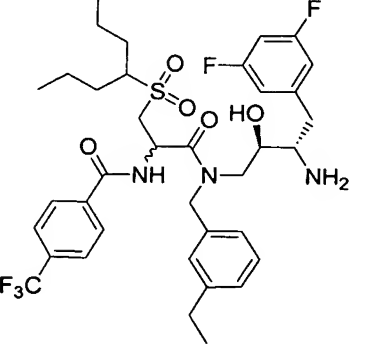
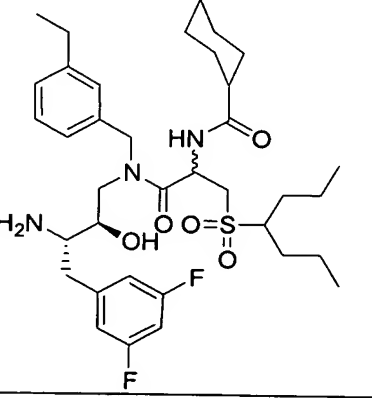
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1459	 <p>HCl</p>	
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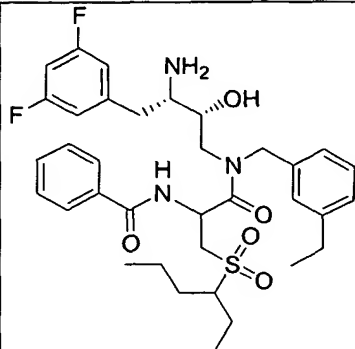
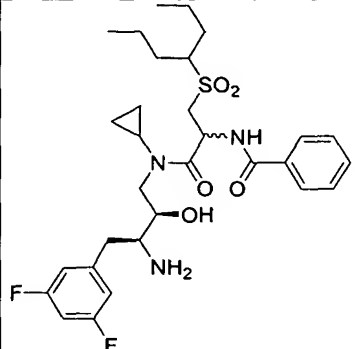
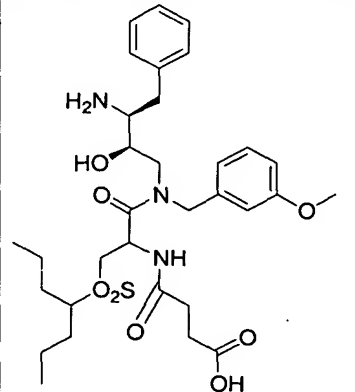
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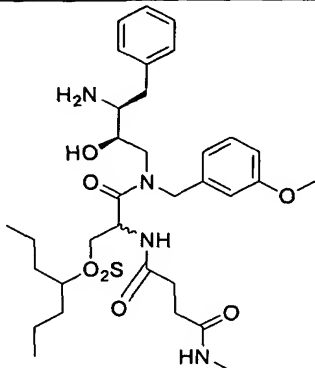
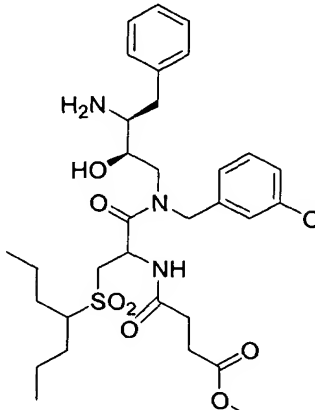
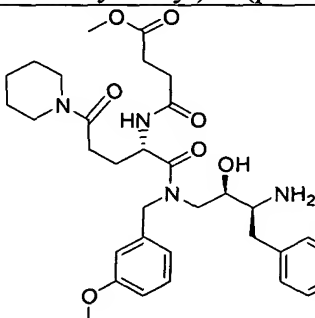
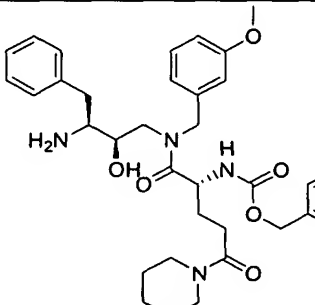
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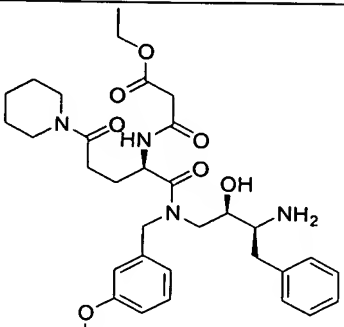
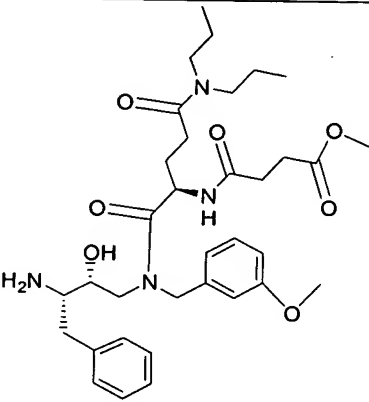
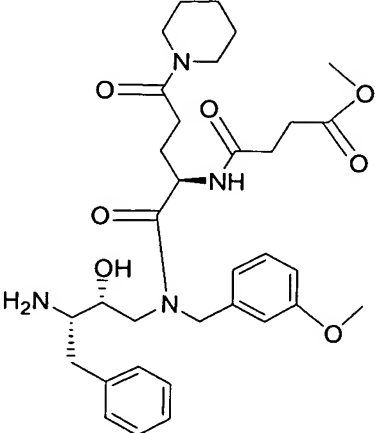
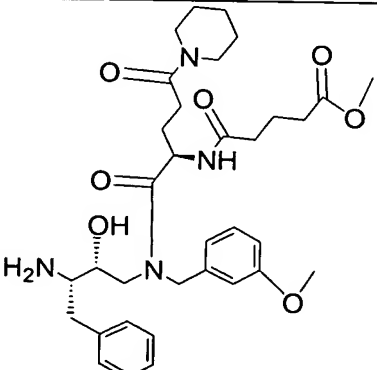


1481		
1483		
1485	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(phenylacetyl)-3-[(1-propylbutyl)sulfonyl]alaninamide	
1487	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(3-phenylpropanoyl)-3-[(1-propylbutyl)sulfonyl]alaninamide	
1489	<i>N</i> -(3-[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino)-3-oxo-2-[[[(1-propylbutyl)sulfonyl]methyl]propyl]benzamide	
1491	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>2</sup> -(cyclopropylacetyl)- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide	
1493	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>2</sup> -[(methylsulfonyl)acetyl]-3-[(1-propylbutyl)sulfonyl]alaninamide	
1495	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>2</sup> -[(methylthio)acetyl]-3-[(1-propylbutyl)sulfonyl]alaninamide	
1497		

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1499		
1501		
1503	<i>N</i> -(methylsulfonyl)glycyl- <i>N'</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N'</i> -(3-methoxybenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide	
1505	<i>N</i> <sup>2</sup> -acetyl- <i>N'</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N'</i> -(3-methoxybenzyl)-3-(phenylsulfonyl)alaninamide	
1507		
1509		

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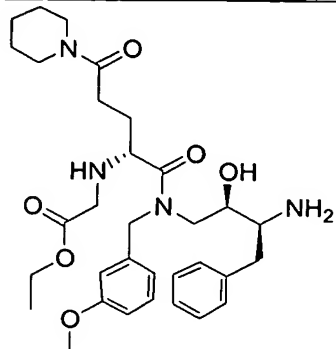
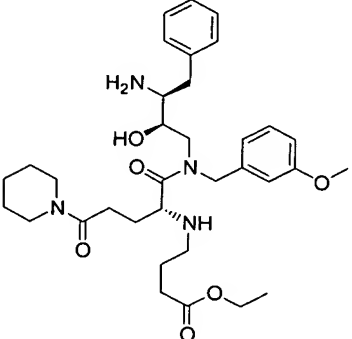
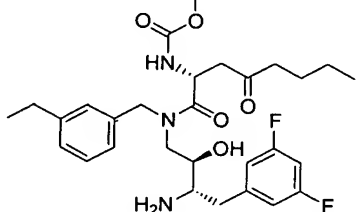
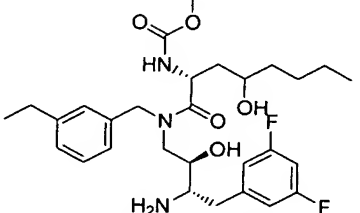
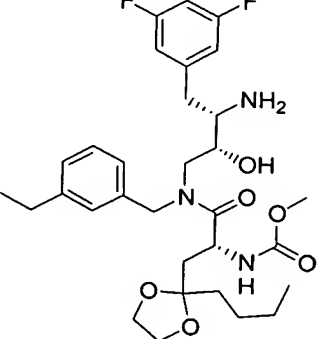
1511		
1513		
1515		
1517		
1519	2-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]-1-[(butylsulfonyl)methyl]-2-oxoethyl acetate	
1521	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>S</i> -butyl- <i>N</i> <sup>1</sup> -(3-	

	ethylbenzyl)-D-cysteinamide
1523	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-D-alaninamide
1525	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-D-alaninamide
1527	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-L-alaninamide
1529	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-methylbutyl)-D-alaninamide
1531	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -[1-(3-ethylphenyl)cyclopropyl]-3-[(1-propylbutyl)sulfonyl]-D-alaninamide
1533	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-L-alaninamide
1535	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -cyclopropyl-3-[(1-propylbutyl)sulfonyl]-D-alaninamide
1537	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-methylbutyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide
1539	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]-D-alaninamide
1541	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide
1543	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(phenoxycetyl)-3-[(1-propylbutyl)sulfonyl]alaninamide
1545	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>2</sup> -{[(5-chloro-2-thienyl)thio]peroxy}- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide
1547	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -(phenylsulfonyl)-3-[(1-propylbutyl)sulfonyl]alaninamide
1549	<i>N</i> <sup>2</sup> -[(benzylamino)carbonyl]- <i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-4-(3,5-difluorophenyl)-2-hydroxy-3-(methylamino)butyl]- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)-3-[(1-propylbutyl)sulfonyl]alaninamide
1551	4-[[[(2 <i>R</i> ,3 <i>S</i> )-4-(3,5-difluorophenyl)-2-hydroxy-3-(methylamino)butyl](3-ethylbenzyl)amino]-4-oxo-3-[[[(1-propylbutyl)sulfonyl]methyl]butanoic acid
1553	4-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl](3-methoxybenzyl)amino]-3-[[[(3-methylbutyl)sulfonyl]methyl]-4-oxobutanoic acid
1555	methyl 4-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl](3-methoxybenzyl)amino]-3-[[[(3-methylbutyl)sulfonyl]methyl]-4-oxobutanoate
1557	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)-2-[[[(3-methylbutyl)sulfonyl]methyl]succinamide
1559	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>4</sup> -methyl-2-[[[(3-methylbutyl)sulfonyl]methyl]succinamide
1561	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>4</sup> , <i>N</i> <sup>4</sup> -dimethyl-2-[[[(3-methylbutyl)sulfonyl]methyl]succinamide
1563	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)- <i>N</i> -(3-ethylbenzyl)-2-[[[(1-propylbutyl)sulfonyl]methyl]propanamide
1565	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)- <i>N</i> -(3-ethylbenzyl)-2-[[[(1-propylbutyl)sulfonyl]methyl]propanamide
1567	(1 <i>R</i> ,2 <i>S</i> )-2-amino-3-(3,5-difluorophenyl)-1-[[[(3-

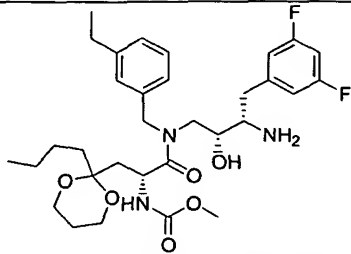
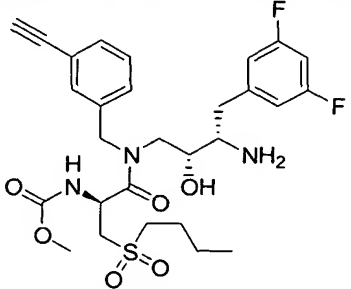
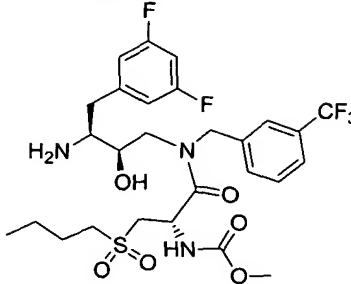
	ethylbenzyl)amino]methyl}propyl 3-(4,4-dimethyl-2,5-dioxoimidazolidin-1-yl)-2-{{(1-propylbutyl)sulfonyl}methyl}propanoate
1569	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-3-(ethylsulfonyl)-2-{{(isobutylsulfonyl)amino]methyl}- <i>N</i> -(3-methoxybenzyl)propanamide
1571	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-3-(ethylthio)-2-{{(isobutylsulfonyl)amino]methyl}- <i>N</i> -(3-methoxybenzyl)propanamide
1573	(2 <i>S</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-2-{{(3-methylbutyl)sulfonyl}amino}-4-(methylsulfonyl)butanamide
1575	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> <sup>1</sup> -(3-methoxybenzyl)- <i>N</i> <sup>2</sup> -[(3-methylbutyl)sulfonyl]- <i>L</i> -methioninamide
1577	<i>S</i> -(3-[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl](3-methoxybenzyl)amino]-2-{{(3-methylbutyl)sulfonyl}methyl}-3-oxopropyl)ethanethioate
1579	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-hydroxy- <i>N</i> -(3-methoxybenzyl)-3-[(1-propylbutyl)sulfonyl]propanamide
1581	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-hydroxy- <i>N</i> -(3-methoxybenzyl)-3-[(3-methylbutyl)sulfonyl]propanamide
1583	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-hydroxy- <i>N</i> -(3-methoxybenzyl)-3-[(3-methoxyphenyl)sulfonyl]propanamide
1585	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-hydroxy-4-(phenylsulfonyl)butanamide
1587	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-hydroxy- <i>N</i> -(3-methoxybenzyl)-4-[(3-methylbutyl)sulfonyl]butanamide
1589	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-4-[(3-methylbutyl)sulfonyl]-2-phenoxybutanamide
1591	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-2-(3-methoxyphenoxy)-4-[(3-methylbutyl)sulfonyl]butanamide
1593	3-{1-{{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl](3-methoxybenzyl)amino]carbonyl}-3-[(3-methylbutyl)sulfonyl]propoxy}benzoic acid
1595	methyl 3-{1-{{[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl](3-methoxybenzyl)amino]carbonyl}-3-[(3-methylbutyl)sulfonyl]propoxy}benzoate
1597	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-hydroxy- <i>N</i> -(3-methoxybenzyl)-4-(phenylsulfonyl)butanamide
1599	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-hydroxy- <i>N</i> -(3-methoxybenzyl)-4-(phenylthio)butanamide
1601	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-methoxy- <i>N</i> -(3-methoxybenzyl)-4-(phenylsulfonyl)butanamide
1603	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-methoxy- <i>N</i> -(3-methoxybenzyl)-4-(phenylthio)butanamide
1605	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-4-(phenylsulfonyl)-2-propoxybutanamide
1607	<i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]-2-(benzyloxy)- <i>N</i> -(3-methoxybenzyl)-4-(phenylsulfonyl)butanamide

1609		
1611		(2 <i>S</i> )-2-amino- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-5-oxo-5-piperidin-1-ylpentanamide
1613		
1615		(2 <i>R</i> )-2-amino- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-2-hydroxy-4-phenylbutyl]- <i>N</i> -(3-methoxybenzyl)-5-oxo-5-piperidin-1-ylpentanamide

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1617		
1619		
1621		methyl ((1 <i>R</i> )-1-{[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-3-oxoheptyl)carbamate
1623		
1625		

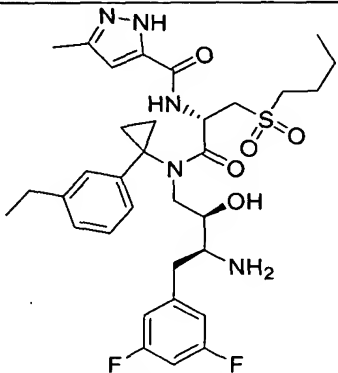
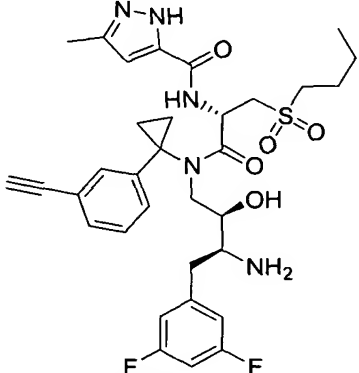
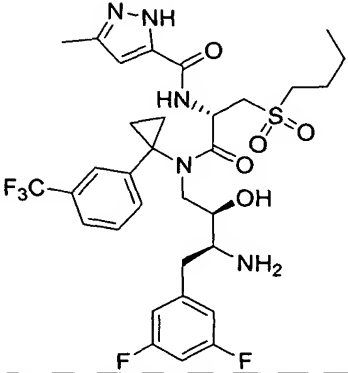
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1627		
1629	methyl ((1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-3,3-difluoroheptyl)carbamate	
1631	methyl ((1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-3-fluoroheptyl)carbamate	
1633	methyl ((1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-4-oxooctyl)carbamate	
1635	methyl ((1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-4-hydroxyoctyl)carbamate	
1637	methyl [(1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-3-(2-butyl-1,3-dioxolan-2-yl)propyl]carbamate	
1639	methyl [(1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-3-(2-butyl-1,3-dioxan-2-yl)propyl]carbamate	
1641	methyl ((1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-4-fluorooctyl)carbamate	
1643	methyl ((1 <i>R</i> )-1- {[[[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl](3-ethylbenzyl)amino]carbonyl}-4,4-difluorooctyl)carbamate	
1645		
1647		

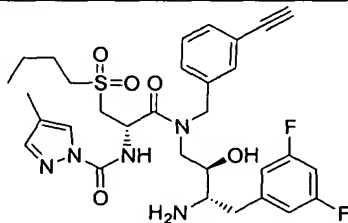
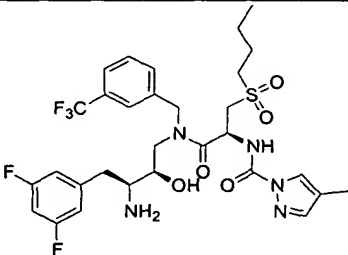
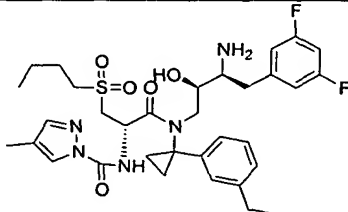


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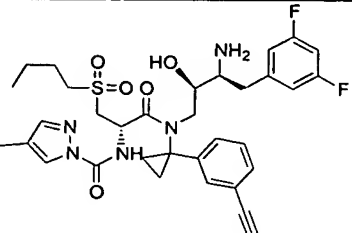
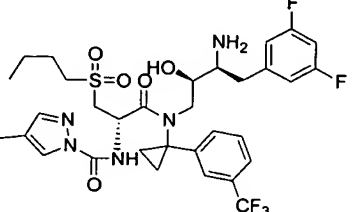
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1651		
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1657		

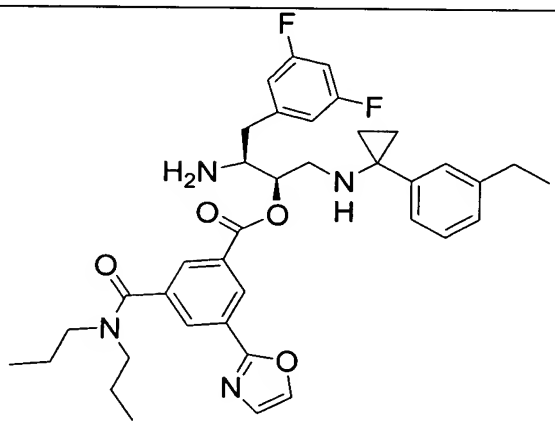
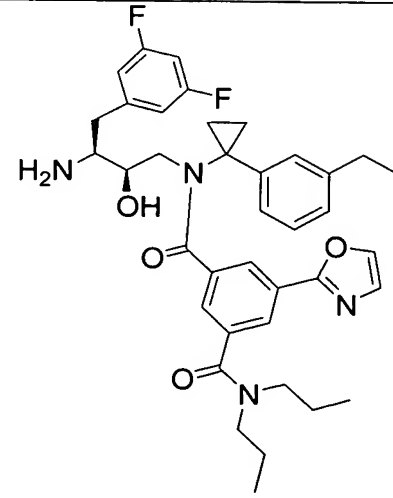
1659		
1661		
1663		
1665	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[[[(methylamino)carbonyl]amino]-4-oxooctanamide	
1667	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-butyl- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -[(methylamino)carbonyl]-D-homoserinamide	
1669	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(2-butyl-1,3-dioxolan-2-yl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -[(methylamino)carbonyl]-D-alaninamide	
1671	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(2-butyl-1,3-dioxan-2-yl)- <i>N</i> <sup>1</sup> -(3-ethylbenzyl)- <i>N</i> <sup>2</sup> -[(methylamino)carbonyl]-D-alaninamide	
1673	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4,4-difluoro-2-[[[(methylamino)carbonyl]amino]octanamide	
1675	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-4-fluoro-2-[[[(methylamino)carbonyl]amino]octanamide	
1677	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-2-[[[(methylamino)carbonyl]amino]-5-oxononanamide	
1679	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-	

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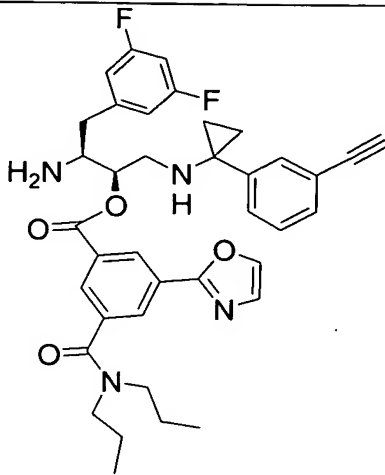
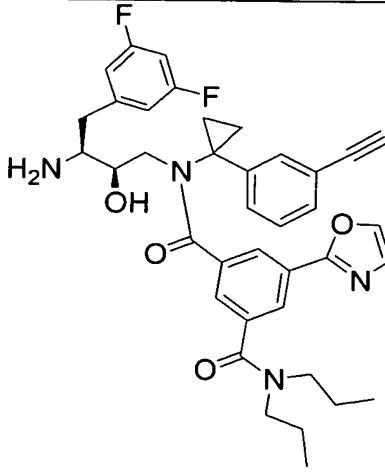
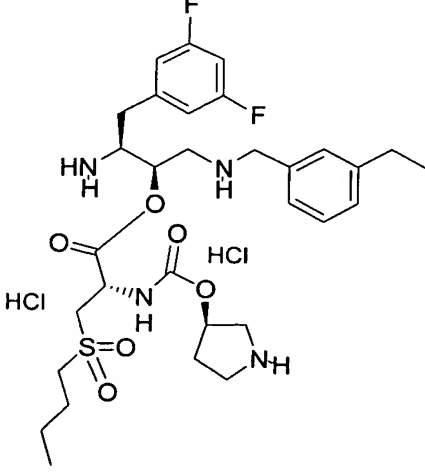
	ethylbenzyl)-5-hydroxy-2-[[[(methylamino)carbonyl]amino}nonanamide	
1681	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(2-butyl-1,3-dioxolan-2-yl)- <i>N</i> -(3-ethylbenzyl)-2-[[[(methylamino)carbonyl]amino}butanamide	
1683	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-4-(2-butyl-1,3-dioxan-2-yl)- <i>N</i> -(3-ethylbenzyl)-2-[[[(methylamino)carbonyl]amino}butanamide	
1685	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5-fluoro-2-[[[(methylamino)carbonyl]amino}nonanamide	
1687	(2 <i>R</i> )- <i>N</i> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]- <i>N</i> -(3-ethylbenzyl)-5,5-difluoro-2-[[[(methylamino)carbonyl]amino}nonanamide	
1689	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -(3-ethynylbenzyl)- <i>N</i> <sup>2</sup> -[[[(methylamino)carbonyl]-D-alaninamide	
1691	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>2</sup> -[[[(methylamino)carbonyl]- <i>N</i> <sup>1</sup> -[3-(trifluoromethyl)benzyl]-D-alaninamide	
1693	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -[1-(3-ethylphenyl)cyclopropyl]- <i>N</i> <sup>2</sup> -[[[(methylamino)carbonyl]-D-alaninamide	
1695	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>1</sup> -[1-(3-ethynylphenyl)cyclopropyl]- <i>N</i> <sup>2</sup> -[[[(methylamino)carbonyl]-D-alaninamide	
1697	<i>N</i> <sup>1</sup> -[(2 <i>R</i> ,3 <i>S</i> )-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-3-(butylsulfonyl)- <i>N</i> <sup>2</sup> -[[[(methylamino)carbonyl]- <i>N</i> <sup>1</sup> -{1-[3-(trifluoromethyl)phenyl]cyclopropyl}-D-alaninamide	
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1701		
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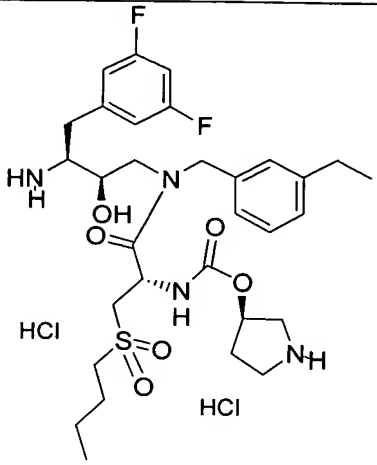
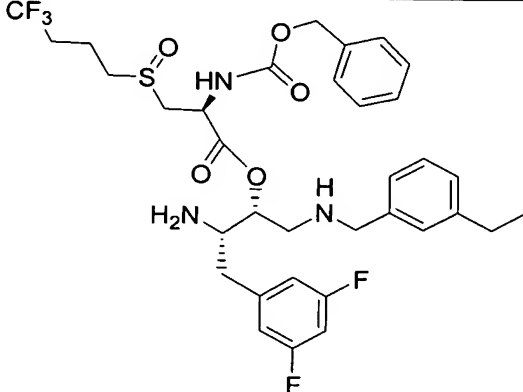
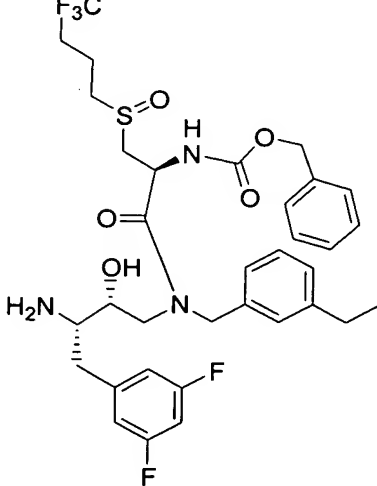
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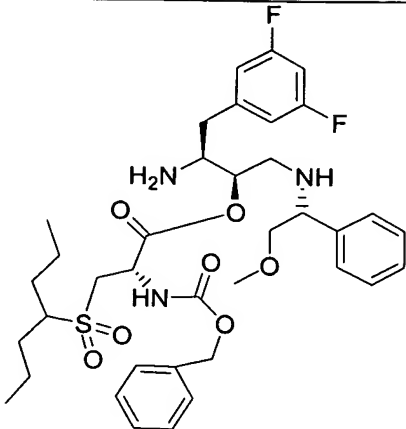
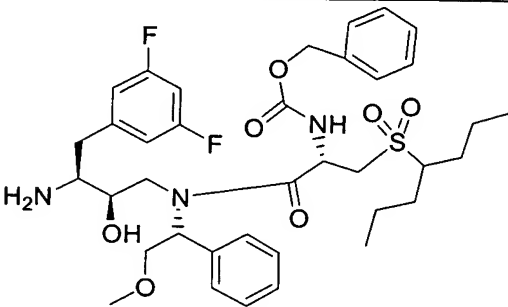
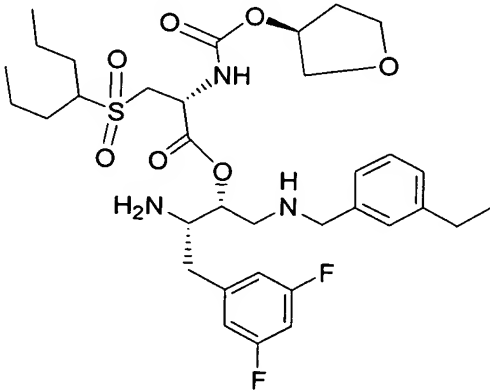
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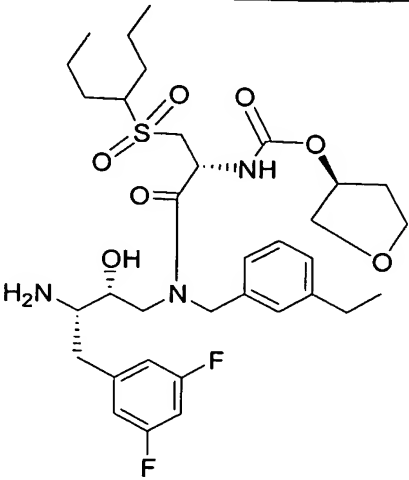
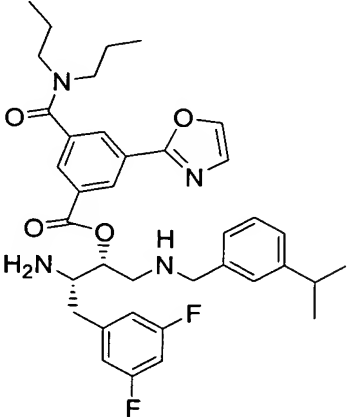
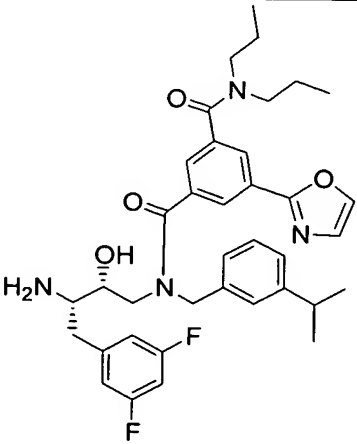
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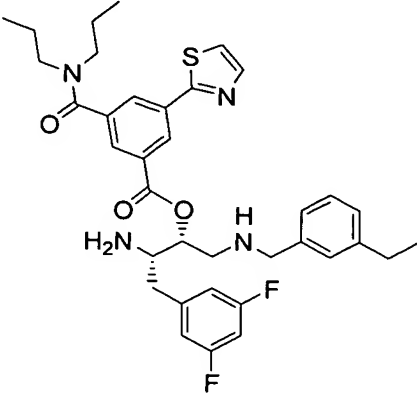
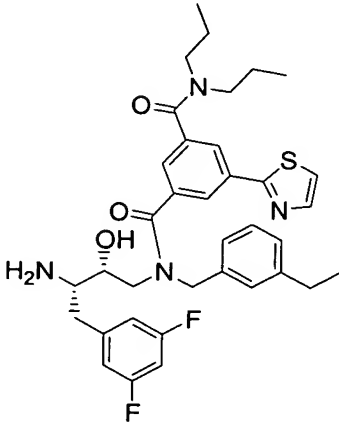
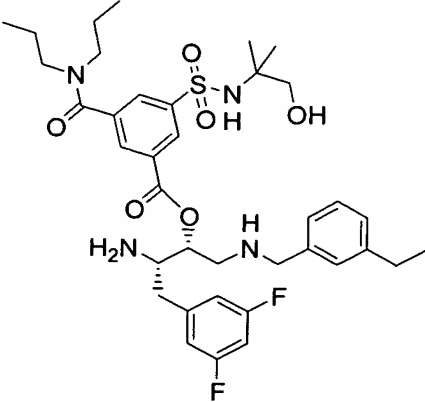
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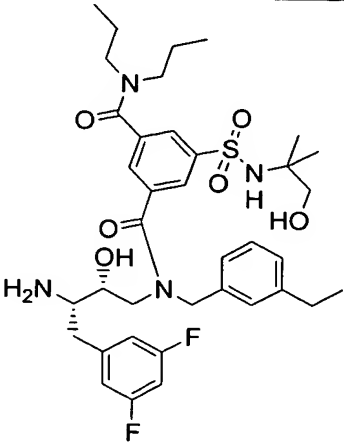
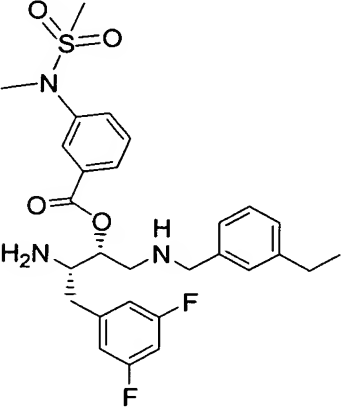
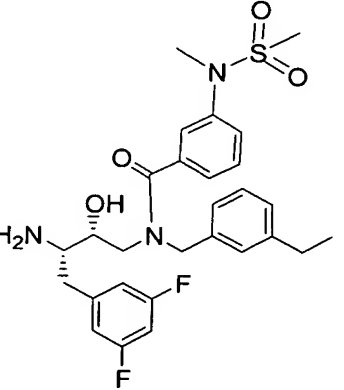
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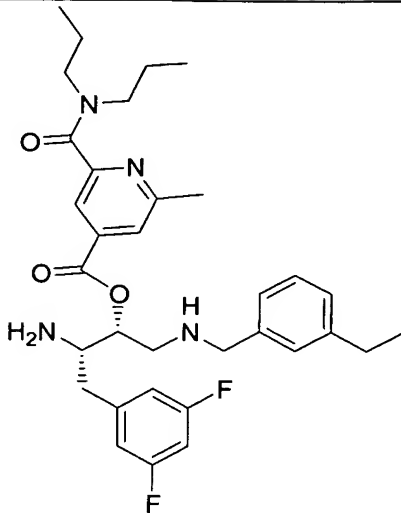
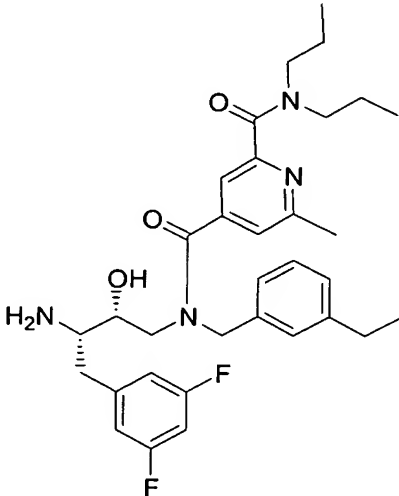


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#### REARRANGEMENT EXAMPLES

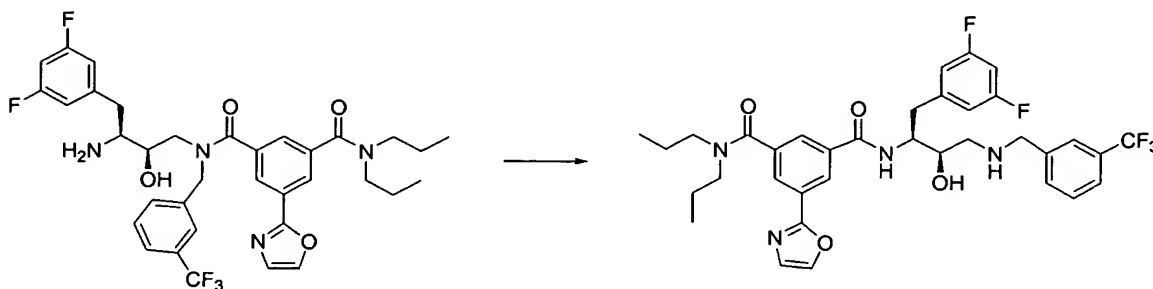
The following examples illustrate the acyl group migration that takes place with compounds of the invention. These examples are for illustration purposes, and are not intended to limit the scope of the invention.

General Procedure:

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A compound of formula (I) OR (X) (5 mg) is dissolved in DMSO- $d_6$  (500  $\mu$ L) and either pH 4 buffer solution (500  $\mu$ L, potassium hydrogen phthalate buffer) or pH 7 buffer solution (500  $\mu$ L, sodium and potassium phosphate buffer) is added. The sample is then heated to 40°C. The O-acyl or N-acyl to N-terminal N-acyl migration is monitored by observing the change in chemical shift for the aromatic fluorines using  $^{19}\text{F}$ -NMR. (Fluorine shifts associated with the desired migration were confirmed by spiking with authentic analogue). The sample is analyzed by  $^{19}\text{F}$ -NMR at approximately 0, 1.5, 3, 24, 48, and 144 hours. The amount of O-acyl pro-drug, N-acyl pro-drug, and desired migration product at each time point are assigned by integrating the corresponding NMR signal.

EXAMPLE 1: Specific NMR Example



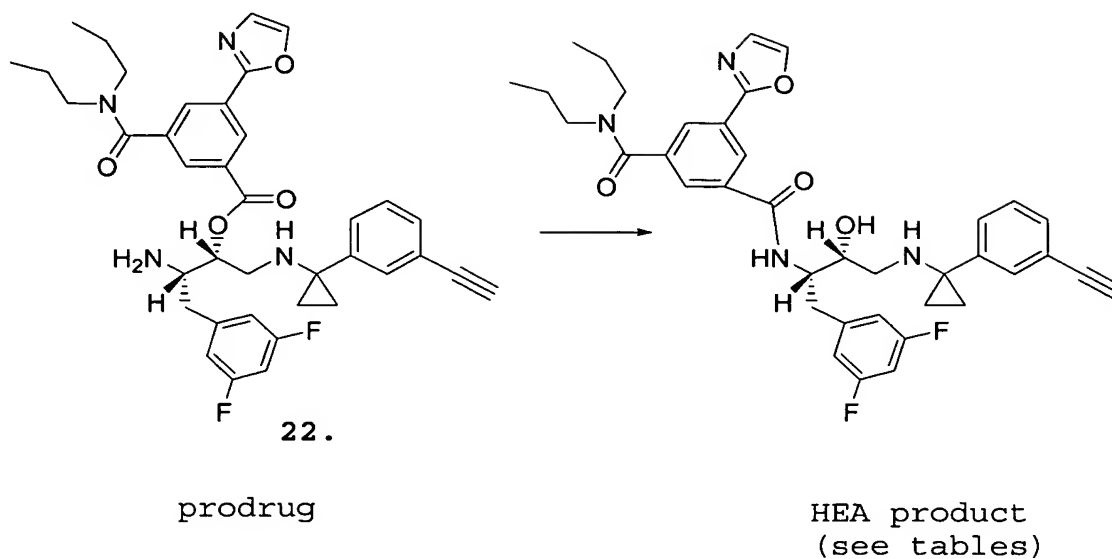
N-1-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(1,3-oxazol-2-yl)-N3,N3-dipropyl-N-1-[3-(trifluoromethyl)benzyl]isophthalamide hydrochloride (PREPARATION 7, 5 mg) is dissolved in DMSO- $d_6$  (500  $\mu$ L) and pH 4 buffer solution (500  $\mu$ L, potassium hydrogen phthalate buffer) is added. The sample is then heated to 40°C. The N-acyl to N-terminal N-acyl

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migration is monitored by observing the change in chemical shift for the aromatic fluorines using  $^{19}\text{F}$ -NMR. (Fluorine shifts for the desired migration product in the presence of buffer was confirmed by spiking with authentic migration product,  $\text{N}^1$ -((1S,2R)-1-(3,5-difluorobenzyl)-2-hydroxy-3-([3-(trifluoromethyl)benzyl]amino)propyl)-5-(1,3-oxazol-2-yl)- $\text{N}^3$ , $\text{N}^3$ -dipropylisophthalamide.) NMR data is collected at 0, 1, 3, 25, 48, 96, and 144 hours. The amount of N-acyl pro-drug and desired migration product present at each time point is assigned by integrating the corresponding NMR signal. No migration to O-acyl pro-drug was observed using this method and was confirmed by spiking with authentic compound.

The following examples illustrate the solution acyl group migration of compounds of the formulae (I) and (X) as observed by  $^{19}\text{F}$  NMR spectroscopy. Data were collected as described in Example 1, above.

EXAMPLE 2: Rearrangement of (1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-([1-(3-ethynylphenyl)cyclopropyl]amino)methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate (22).



Tables 1-2 provide relative concentrations as a function of time and at varying pH of prodrug 22 and its rearrangement product.

**Table 1.** Concentrations at 40 °C, pH 7.

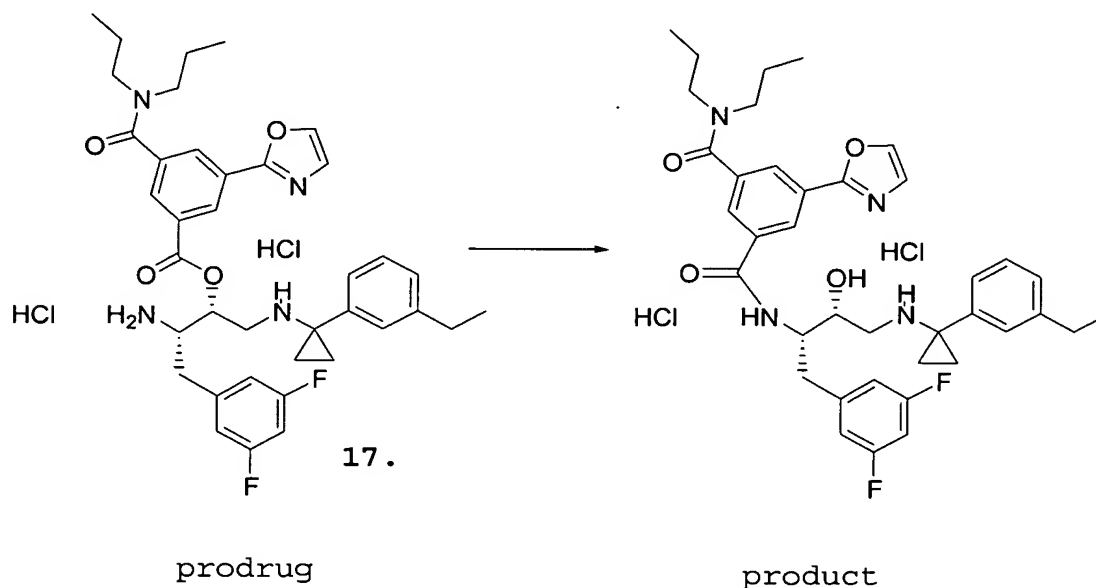
pH 7, 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug	HEA <sup>1</sup> product
(hr)	(% present)	(% present)	(% present)
0	100	0	0
0.5	10	0	10
1	0	0	100

<sup>1</sup> HEA = the hydroxyethylamine product of the acyl group migration.

**Table 2.** Concentrations at 40 °C, pH 4.

pH 4, 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug	HEA product
(hr)	(% present)	(% present)	(% present)
0	100	0	0
0.5	93	0	7
1	87	0	13
3	66	0	27
6	49	0	42
24	9	0	78
48	0	0	86

EXAMPLE 3: Rearrangement of (1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-({[1-(3-ethylphenyl)cyclopropyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate dihydrochloride (17).



Tables 3-4 provide relative concentrations as a function of time and at varying pH of prodrug **17** and its rearrangement product.

**Table 3.** Concentrations at 40 °C, pH 7.

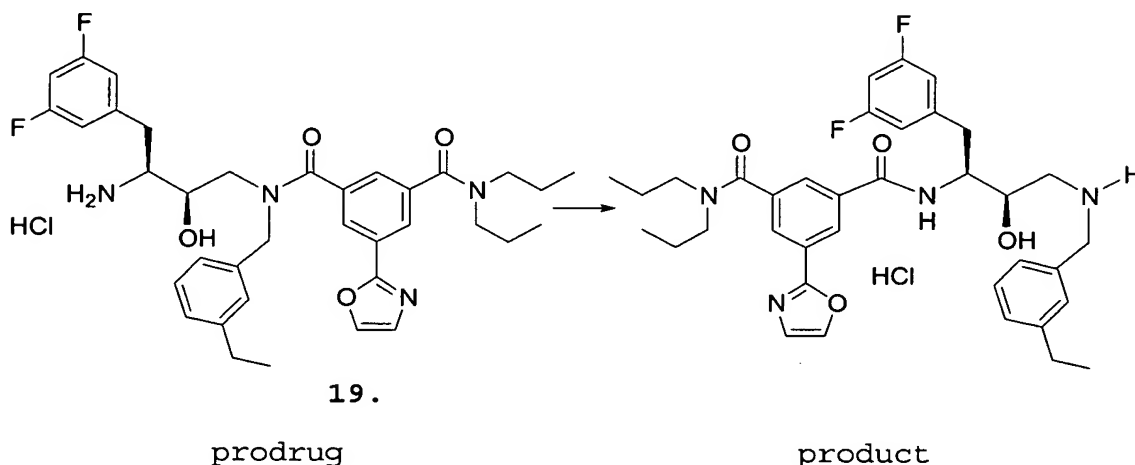
pH 7 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug	HEA product
(hr)	(% present)	(% present)	(% present)
0	100	0	0
1.5	3	0	97
7		0	
24		0	
48		0	
144		0	

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**Table 4.** Concentrations at 40 °C, pH 4.

pH 4 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug	HEA product
(hr)	(% present)	(% present)	(% present)
0	100	0	0
1.5	53	0	47
3	33	0	67
6	11	0	89
24	0	0	100

**EXAMPLE 4:** Rearrangement of N<sup>1</sup>-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-N\ (u) 1\ (d) -(3-ethylbenzyl)-5-(1,3-oxazol-2-yl)-N<sup>3</sup>,N<sup>3</sup>-dipropylisophthalamide hydrochloride (19).



Tables 5-6 provide relative concentrations as a function of time and at varying pH of prodrug 19 and its rearrangement product.

**Table 5.** Concentrations at 40 °C, pH 7.

pH 7 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug	HEA product
(hr)	(% present)	(% present)	(% present)
0	0	100	0
1	0	97	3
3	0	91	9



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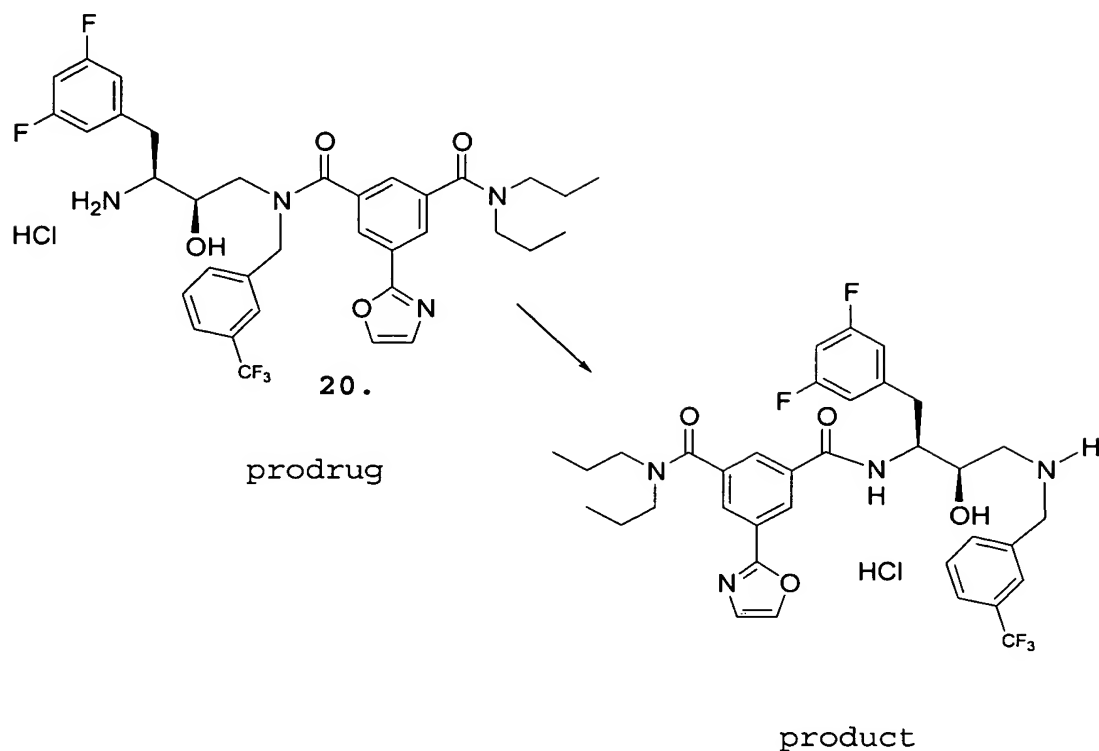
24	0	60	40
48	0	37	63
96	0	19	81

**Table 6.** Concentrations at 40 °C, pH 4.

<b>pH 4 40°C</b>			
<b>TIME</b>	<b>O-acyl pro-drug</b>	<b>N-acyl prodrug</b>	<b>HEA product</b>
<b>(hr)</b>	<b>(% present)</b>	<b>(% present)</b>	<b>(% present)</b>
0	0	100	0
1	0	100	0
3	0	100	0
24	0	97	3
48	0	95	5
96	0	92	8

EXAMPLE 5: Rearrangement of N<sup>1</sup>-[(2R,3S)-3-amino-4-(3,5-difluorophenyl)-2-hydroxybutyl]-5-(1,3-oxazol-2-yl)-N<sup>3</sup>,N<sup>3</sup>-dipropyl-N<sup>1</sup>-[3-(trifluoromethyl)benzyl]-isophthalamide hydrochloride (20).

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Tables 7-8 provide relative concentrations as a function of time and at varying pH of prodrug 20 and its rearrangement product.

**Table 7.** Concentrations at 40 °C, pH 7.

pH 7 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug	HEA product
(hr)	(% present)	(% present)	(% present)
0	0	100	0
1	0	93	7
3	0	88	12
24	0	49	51
48	0	27	73
96	0	12	88

**Table 8.** Concentrations at 40 °C, pH 4.

pH 4 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug	HEA product
(hr)	(% present)	(% present)	(% present)

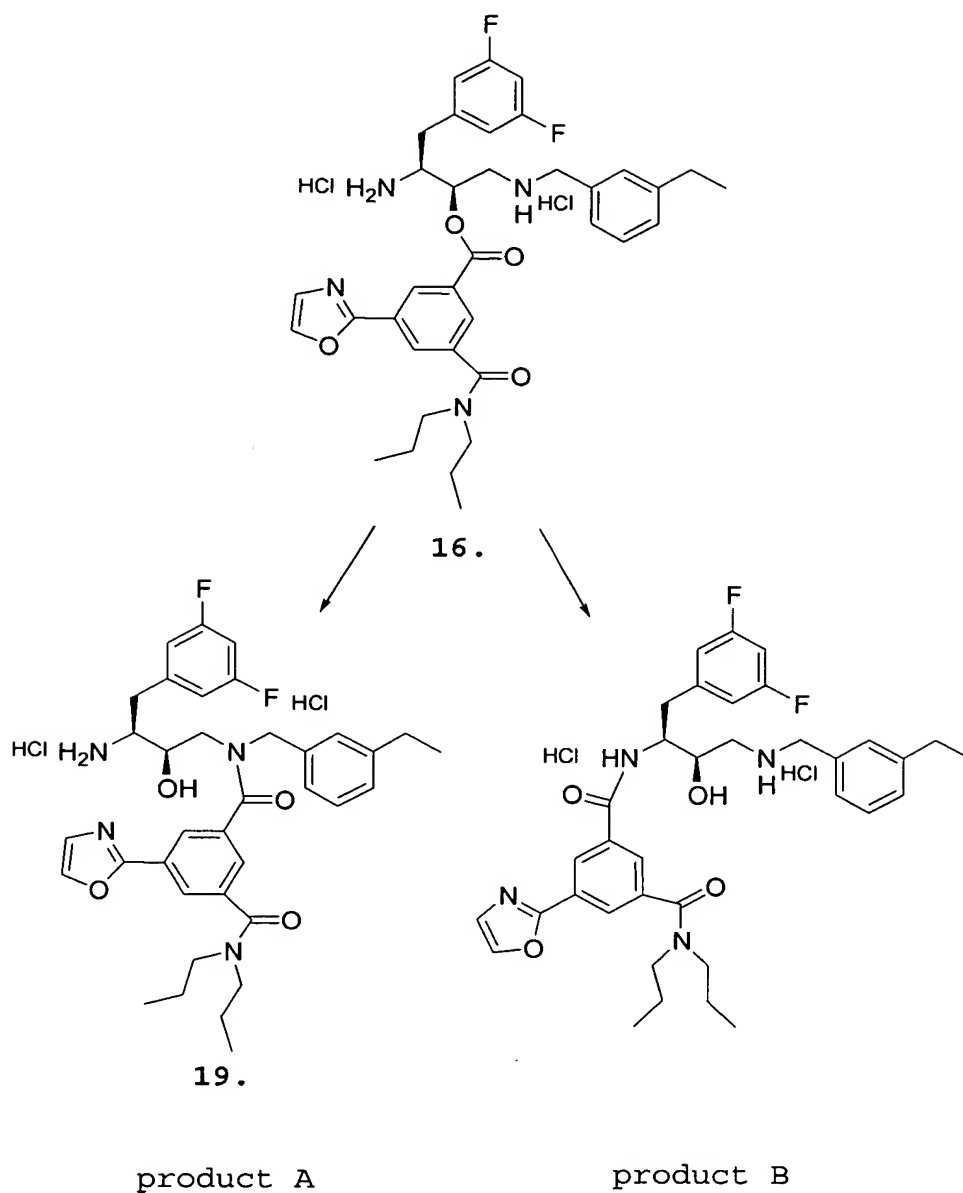
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0	0	100	0
1	0	97	3
3	0	96	4
24	0	93	7
48	0	92	8
96	0	88	12

EXAMPLE 6: Rearrangement of (1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-{{[(3-ethylbenzyl)amino]methyl}propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate dihydrochloride (16).

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Tables 9-10 provide relative concentrations as a function of time and at varying pH of prodrug 16 and its rearrangement products.

**Table 9.** Concentrations at 40 °C, pH 7.

pH 7 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug (product A)	HEA product (product B)
(hr)	(% present)	(% present)	(% present)

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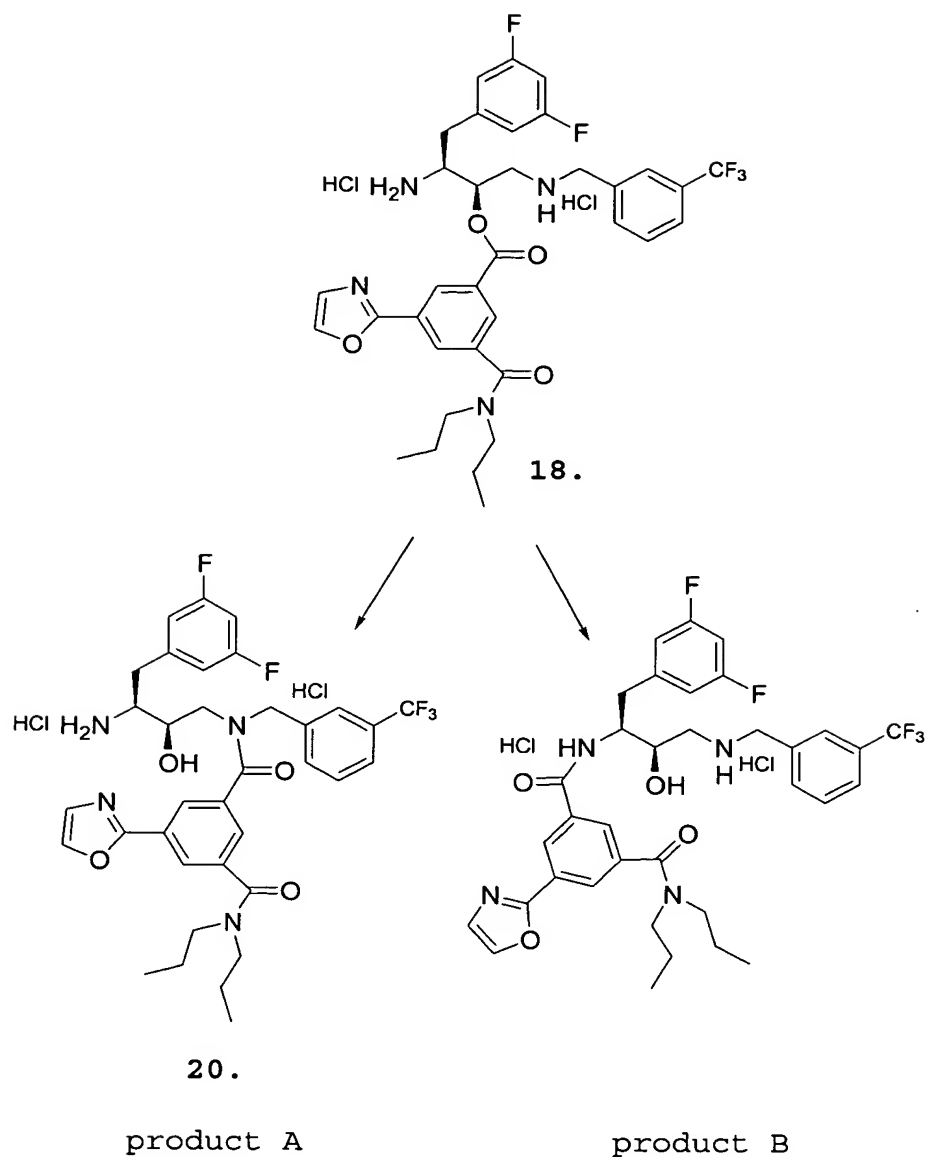
0	100	0	0
1.5	0	52	48
7	0	46	54
24	0	38	62
48	0	29	71
144	0	15	85

**Table 10.** Concentrations at 40 °C, pH 4.

pH 4 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug (product A)	HEA product (product B)
(hr)	(% present)	(% present)	(% present)
0	100	0	0
1.5	33	13	54
3	9	15	76
24	0	12	88
48	0	12	88
144	0	9	91

EXAMPLE 7: Rearrangement of (1R,2S)-2-amino-3-(3,5-difluorophenyl)-1-({[3-(trifluoromethyl)benzyl]amino}methyl)propyl 3-[(dipropylamino)carbonyl]-5-(1,3-oxazol-2-yl)benzoate dihydrochloride (18).

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Tables 11-12 provide relative concentrations as a function of time and at varying pH of prodrug 18 and its rearrangement products.

**Table 11.** Concentrations at 40 °C, pH 7.

pH 7 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug (product A)	HEA product (product B)
(hr)	(% present)	(% present)	(% present)
0	100	0	0
1.5	0	66	34
7	0	59	41
24	0	43	57
48	0	27	73
144	0	16	84

**Table 12.** Concentrations at 40 °C, pH 4.

pH 4 40°C			
TIME	O-acyl pro-drug	N-acyl prodrug (product A)	HEA product (product B)
(hr)	(% present)	(% present)	(% present)
0	100	0	0
1.5	32	14	54
3	8	18	74
30	0	21	79
54	0	20	80
126	0	14	86

### BIOLOGY EXAMPLES

#### Example A

##### Enzyme Inhibition Assay

The rearranged compounds of the invention are analyzed for inhibitory activity by use of the MBP-C125 assay. This assay determines the relative inhibition of beta-secretase cleavage of a model APP substrate, MBP-C125SW, by the compounds assayed as compared with an untreated control. A detailed description of the assay parameters can be found, for example, in U.S. Patent No. 5,942,400. Briefly, the substrate is a fusion peptide formed of maltose binding protein (MBP) and the carboxy terminal 125 amino acids of APP-SW, the Swedish mutation.

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The beta-secretase enzyme is derived from human brain tissue as described in Sinha et al, 1999, *Nature* 40:537-540) or recombinantly produced as the full-length enzyme (amino acids 1-501), and can be prepared, for example, from 293 cells expressing the recombinant cDNA, as described in WO00/47618.

Inhibition of the enzyme is analyzed, for example, by immunoassay of the enzyme's cleavage products. One exemplary ELISA uses an anti-MBP capture antibody that is deposited on precoated and blocked 96-well high binding plates, followed by incubation with diluted enzyme reaction supernatant, incubation with a specific reporter antibody, for example, biotinylated anti-SW192 reporter antibody, and further incubation with streptavidin/alkaline phosphatase. In the assay, cleavage of the intact MBP-C125SW fusion protein results in the generation of a truncated amino-terminal fragment, exposing a new SW-192 antibody-positive epitope at the carboxy terminus. Detection is effected by a fluorescent substrate signal on cleavage by the phosphatase. ELISA only detects cleavage following Leu 596 at the substrate's APP-SW 751 mutation site.

#### **Specific Assay Procedure:**

Compounds are diluted in a 1:1 dilution series to a six-point concentration curve (two wells per concentration) in one 96-plate row per compound tested. Each of the test compounds is prepared in DMSO to make up a 10 millimolar stock solution. The stock solution is serially diluted in DMSO to obtain a final compound concentration of 200 micromolar at the high point of a 6-point dilution curve. Ten (10) microliters of each dilution is added to each of two wells on row C of a



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corresponding V-bottom plate to which 190 microliters of 52 millimolar NaOAc, 7.9% DMSO, pH 4.5 are pre-added. The NaOAc diluted compound plate is spun down to pellet precipitant and 20 microliters/well is transferred to a corresponding flat-bottom plate to which 30 microliters of ice-cold enzyme-substrate mixture (2.5 microliters MBP-C125SW substrate, 0.03 microliters enzyme and 24.5 microliters ice cold 0.09% TX100 per 30 microliters) is added. The final reaction mixture of 200 micromolar compound at the highest curve point is in 5% DMSO, 20 millimolar NaOAc, 0.06% TX100, at pH 4.5.

Warming the plates to 37 degrees C starts the enzyme reaction. After 90 minutes at 37 degrees C, 200 microliters/well cold specimen diluent is added to stop the reaction and 20 microliters/well was transferred to a corresponding anti-MBP antibody coated ELISA plate for capture, containing 80 microliters/well specimen diluent. This reaction is incubated overnight at 4 degrees C and the ELISA is developed the next day after a 2 hour incubation with anti-192SW antibody, followed by Streptavidin-AP conjugate and fluorescent substrate. The signal is read on a fluorescent plate reader.

Relative compound inhibition potency is determined by calculating the concentration of compound that showed a fifty percent reduction in detected signal ( $IC_{50}$ ) compared to the enzyme reaction signal in the control wells with no added compound. In this assay, preferred compounds of the invention exhibit an  $IC_{50}$  of less than 50 micromolar.

#### **Example B**

#### **Cell Free Inhibition Assay Utilizing a Synthetic APP Substrate**

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A synthetic APP substrate that can be cleaved by beta-secretase and having N-terminal biotin and made fluorescent by the covalent attachment of Oregon green at the Cys residue is used to assay beta-secretase activity in the presence or absence of the inhibitory compounds of the invention. Useful substrates include the following:

Biotin-SEVNL-DAEFRC[oregon green]KK [SEQ ID  
NO: 1]

Biotin-SEVKM-DAEFRC[oregon green]KK [SEQ ID  
NO: 2]

Biotin-GLNIKTEEISEISY-EVEFRC[oregon green]KK [SEQ ID  
NO: 3]

Biotin-ADRGLTTRPGSGLTNIKTEEISEVNL-DAEFRC[oregon  
green]KK [SEQ ID NO:4]

Biotin-FVNQHLCoxGSHLVEALY-LVCoxGERGFFYTPKAC[oregon  
green]KK [SEQ ID NO: 5]

The enzyme (0.1 nanomolar) and test compounds (0.001 - 100 micromolar) are incubated in pre-blocked, low affinity, black plates (384 well) at 37 degrees for 30 minutes. The reaction is initiated by addition of 150 millimolar substrate to a final volume of 30 microliter per well. The final assay conditions are: 0.001 - 100 micromolar compound inhibitor; 0.1 molar sodium acetate (pH 4.5); 150 nanomolar substrate; 0.1 nanomolar soluble beta-secretase; 0.001% Tween 20, and 2% DMSO. The assay mixture is incubated for 3 hours at 37 degrees C, and the reaction is terminated by the addition of a saturating concentration of immunopure streptavidin. After incubation with streptavidin at room temperature for 15 minutes, fluorescence polarization is measured, for example, using a LJL Acquest (Ex485 nm/ Em530 nm). The activity of the beta-secretase enzyme is detected by

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changes in the fluorescence polarization that occur when the substrate is cleaved by the enzyme. Incubation in the presence or absence of compound inhibitor demonstrates specific inhibition of beta-secretase enzymatic cleavage of its synthetic APP substrate. In this assay, preferred compounds of the invention exhibit an  $IC_{50}$  of less than 50 micromolar.

### **Example C**

#### **Beta-Secretase Inhibition: P26-P4'SW Assay**

Synthetic substrates containing the beta-secretase cleavage site of APP are used to assay beta-secretase activity, using the methods described, for example, in published PCT application WO00/47618. The P26-P4'SW substrate is a peptide of the sequence:

(biotin)CGGADRGLTTRPGSGLTNIKTEEISEVNLD AEF [SEQ ID NO: 6]

The P26-P1 standard has the sequence:

(biotin)CGGADRGLTTRPGSGLTNIKTEEISEVNL [SEQ ID NO: 7].

Briefly, the biotin-coupled synthetic substrates are incubated at a concentration of from about 0 to about 200 micromolar in this assay. When testing inhibitory compounds, a substrate concentration of about 1.0 micromolar is preferred. Test compounds diluted in DMSO are added to the reaction mixture, with a final DMSO concentration of 5%. Controls also contain a final DMSO concentration of 5%. The concentration of beta secretase enzyme in the reaction is varied, to give product concentrations with the linear range of the ELISA assay, about 125 to 2000 picomolar, after dilution.

The reaction mixture also includes 20 millimolar sodium acetate, pH 4.5, 0.06% Triton X100, and is

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incubated at 37 degrees C for about 1 to 3 hours. Samples are then diluted in assay buffer (for example, 145.4 nanomolar sodium chloride, 9.51 millimolar sodium phosphate, 7.7 millimolar sodium azide, 0.05% Triton X405, 6g/liter bovine serum albumin, pH 7.4) to quench the reaction, then diluted further for immunoassay of the cleavage products.

Cleavage products can be assayed by ELISA. Diluted samples and standards are incubated in assay plates coated with capture antibody, for example, SW192, for about 24 hours at 4 degrees C. After washing in TTBS buffer (150 millimolar sodium chloride, 25 millimolar Tris, 0.05% Tween 20, pH 7.5), the samples are incubated with streptavidin-AP according to the manufacturer's instructions. After a one hour incubation at room temperature, the samples are washed in TTBS and incubated with fluorescent substrate solution A (31.2 g/liter 2-amino-2-methyl-1-propanol, 30 mg/liter, pH 9.5). Reaction with streptavidin-alkaline phosphate permits detection by fluorescence. Compounds that are effective inhibitors of beta-secretase activity demonstrate reduced cleavage of the substrate as compared to a control.

#### **Example D**

##### **Assays using Synthetic Oligopeptide-Substrates**

Synthetic oligopeptides are prepared that incorporate the known cleavage site of beta-secretase, and optionally detectable tags, such as fluorescent or chromogenic moieties. Examples of such peptides, as well as their production and detection methods are described in U.S. Patent No: 5,942,400, herein incorporated by reference. Cleavage products can be detected using high performance liquid chromatography, or fluorescent or

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chromogenic detection methods appropriate to the peptide to be detected, according to methods well known in the art.

By way of example, one such peptide has the sequence SEVNL-DAEF [SEQ ID NO: 8], and the cleavage site is between residues 5 and 6. Another preferred substrate has the sequence ADRGLTTRPGSGLTNIKTEEISEVNL-DAEF [SEQ ID NO: 9], and the cleavage site is between residues 26 and 27.

These synthetic APP substrates are incubated in the presence of beta-secretase under conditions sufficient to result in beta-secretase mediated cleavage of the substrate. Comparison of the cleavage results in the presence of the compound inhibitor to control results provides a measure of the compound's inhibitory activity.

#### **Example E**

##### **Inhibition of Beta-Secretase Activity - Cellular Assay**

An exemplary assay for the analysis of inhibition of beta-secretase activity utilizes the human embryonic kidney cell line HEKp293 (ATCC Accession No. CRL-1573) transfected with APP751 containing the naturally occurring double mutation Lys651Met52 to Asn651Leu652 (numbered for APP751), commonly called the Swedish mutation and shown to overproduce A beta (Citron et al., 1992, *Nature* 360:672-674), as described in U.S. Patent No. 5,604,102.

The cells are incubated in the presence/absence of the inhibitory compound (diluted in DMSO) at the desired concentration, generally up to 10 micrograms/ml. At the end of the treatment period, conditioned media is analyzed for beta-secretase activity, for example, by

analysis of cleavage fragments. A beta can be analyzed by immunoassay, using specific detection antibodies. The enzymatic activity is measured in the presence and absence of the compound inhibitors to demonstrate specific inhibition of beta-secretase mediated cleavage of APP substrate.

#### **Example F**

##### **Inhibition of Beta-Secretase in Animal Models of AD**

Various animal models can be used to screen for inhibition of beta-secretase activity. Examples of animal models useful in the invention include, but are not limited to, mouse, guinea pig, dog, and the like. The animals used can be wild type, transgenic, or knockout models. In addition, mammalian models can express mutations in APP, such as APP695-SW and the like described herein. Examples of transgenic non-human mammalian models are described in U.S. Patent Nos. 5,604,102, 5,912,410 and 5,811,633.

PDAPP mice, prepared as described in Games et al., 1995, *Nature* 373:523-527 are useful to analyze *in vivo* suppression of A beta release in the presence of putative inhibitory compounds. As described in U.S. Patent No. 6,191,166, 4 month old PDAPP mice are administered compound formulated in vehicle, such as corn oil. The mice are dosed with compound (1-30 mg/ml; preferably 1-10 mg/ml). After time, e.g., 3-10 hours, the animals are sacrificed, and brains removed for analysis.

Transgenic animals are administered an amount of the compound inhibitor formulated in a carrier suitable for the chosen mode of administration. Control animals are untreated, treated with vehicle, or treated with an inactive compound. Administration can be acute, i.e.,

single dose or multiple doses in one day, or can be chronic, i.e., dosing is repeated daily for a period of days. Beginning at time 0, brain tissue or cerebral fluid is obtained from selected animals and analyzed for the presence of APP cleavage peptides, including A beta, for example, by immunoassay using specific antibodies for A beta detection. At the end of the test period, animals are sacrificed and brain tissue or cerebral fluid is analyzed for the presence of A beta and/or beta-amyloid plaques. The tissue is also analyzed for necrosis.

Animals administered the compound inhibitors of the invention are expected to demonstrate reduced A beta in brain tissues or cerebral fluids and reduced beta amyloid plaques in brain tissue, as compared with non-treated controls.

#### **Example G**

##### **Inhibition of A Beta Production in Human Patients**

Patients suffering from Alzheimer's Disease (AD) demonstrate an increased amount of A beta in the brain. AD patients are administered an amount of the compound inhibitor formulated in a carrier suitable for the chosen mode of administration. Administration is repeated daily for the duration of the test period. Beginning on day 0, cognitive and memory tests are performed, for example, once per month.

Patients administered the compound inhibitors are expected to demonstrate slowing or stabilization of disease progression as analyzed by changes in one or more of the following disease parameters: A beta present in CSF or plasma; brain or hippocampal volume; A beta deposits in the brain; amyloid plaque in the brain; and

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scores for cognitive and memory function, as compared with control, non-treated patients.

#### **Example H**

#### **Prevention of A Beta Production in Patients at Risk for AD**

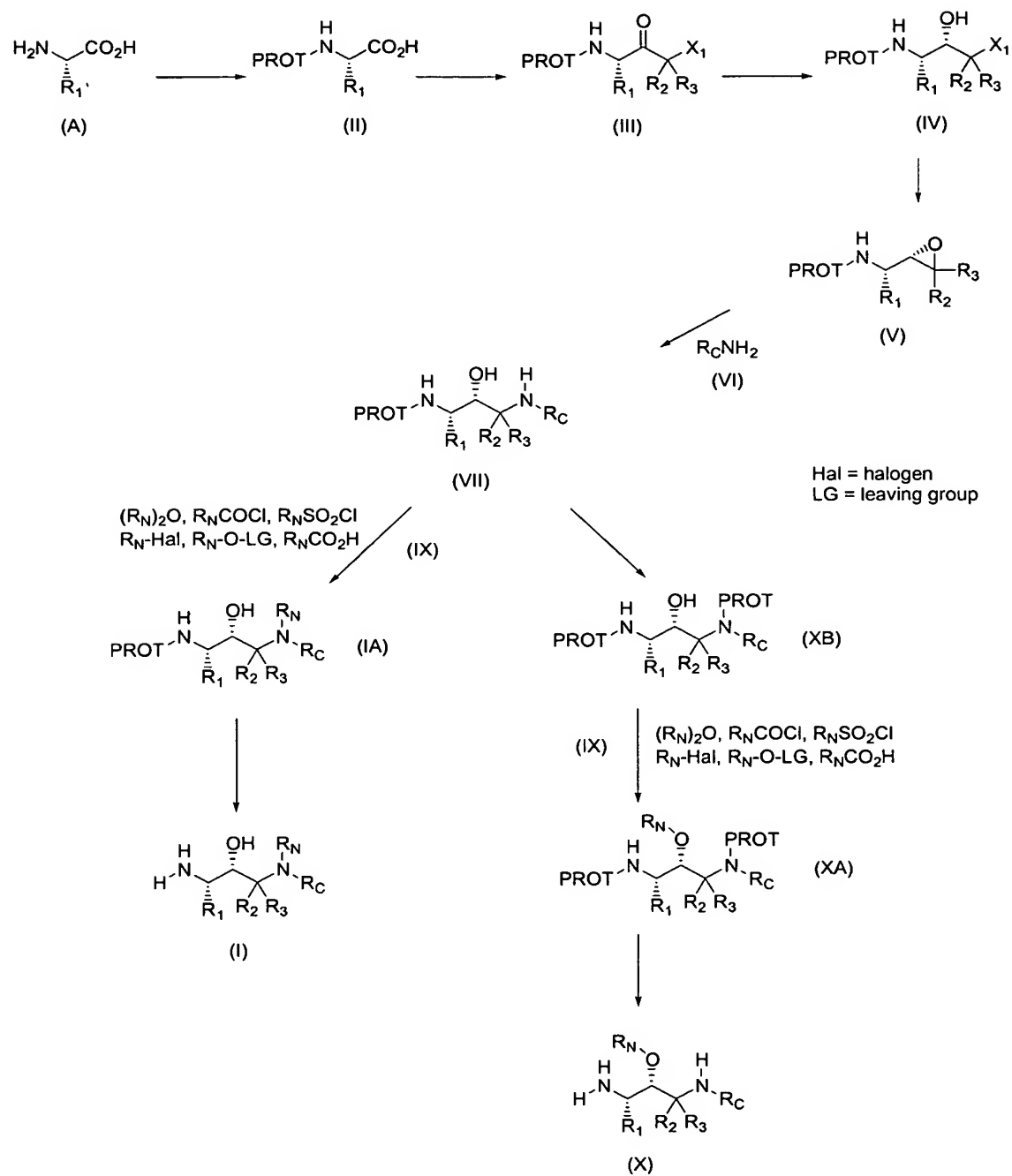
Patients predisposed or at risk for developing AD are identified either by recognition of a familial inheritance pattern, for example, presence of the Swedish Mutation, and/or by monitoring diagnostic parameters. Patients identified as predisposed or at risk for developing AD are administered an amount of the compound inhibitor formulated in a carrier suitable for the chosen mode of administration. Administration is repeated daily for the duration of the test period. Beginning on day 0, cognitive and memory tests are performed, for example, once per month.

Patients administered the compound inhibitors are expected to demonstrate slowing or stabilization of disease progression as analyzed by changes in one or more of the following disease parameters: A beta present in CSF or plasma; brain or hippocampal volume; amyloid plaque in the brain; and scores for cognitive and memory function, as compared with control, non-treated patients.

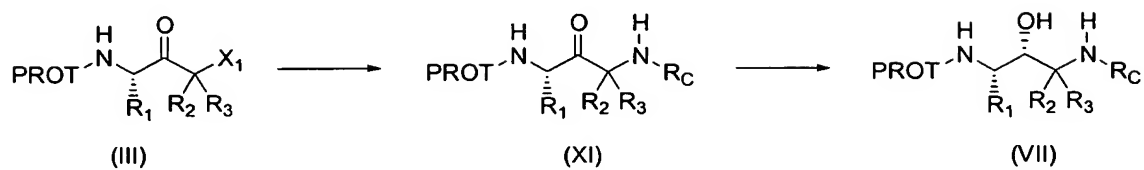
The invention has been described with reference to various specific and preferred embodiments and techniques. However, it should be understood that many variations and modifications may be made while remaining within the spirit and scope of the invention.



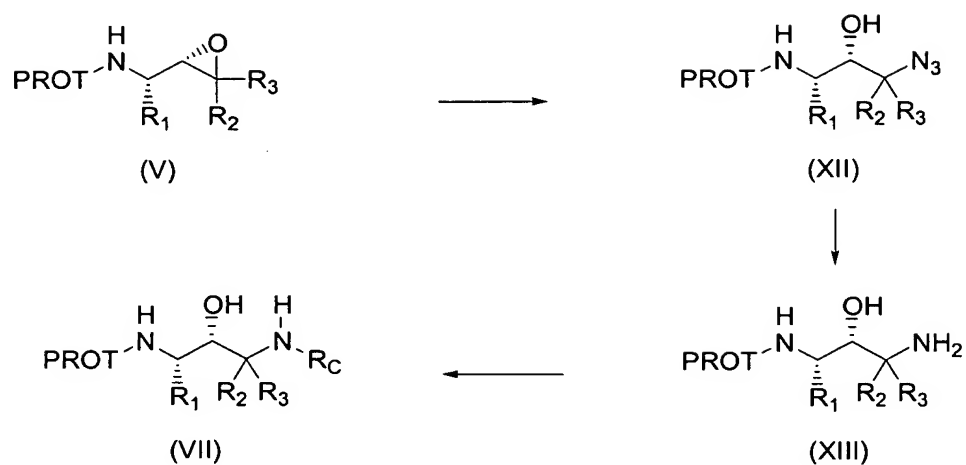
SCHEME A



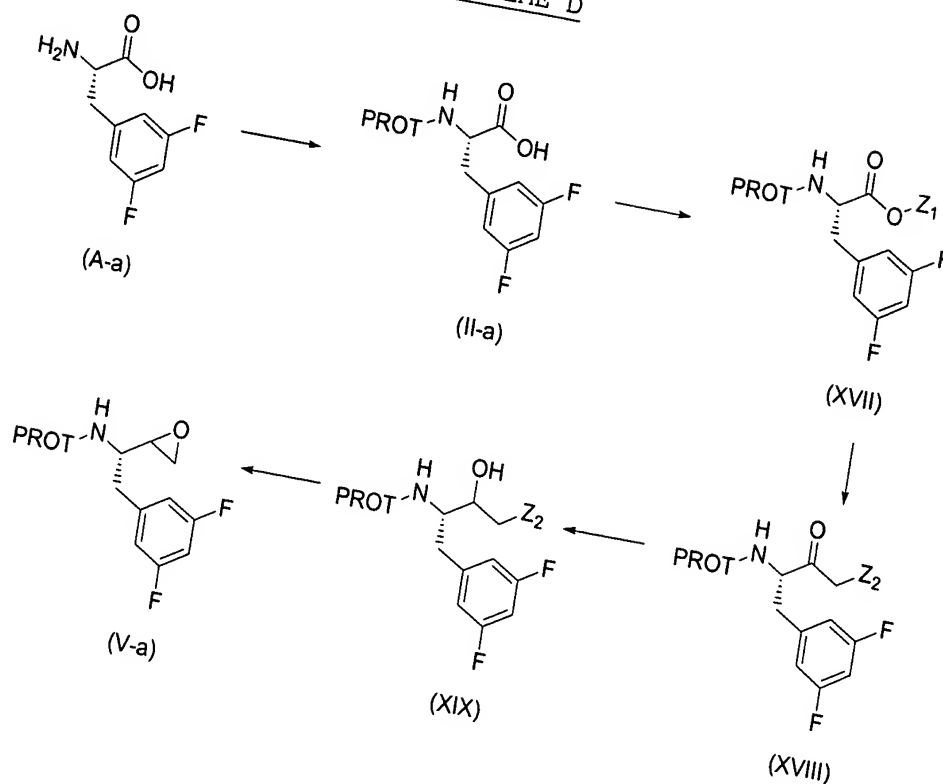
SCHEME B



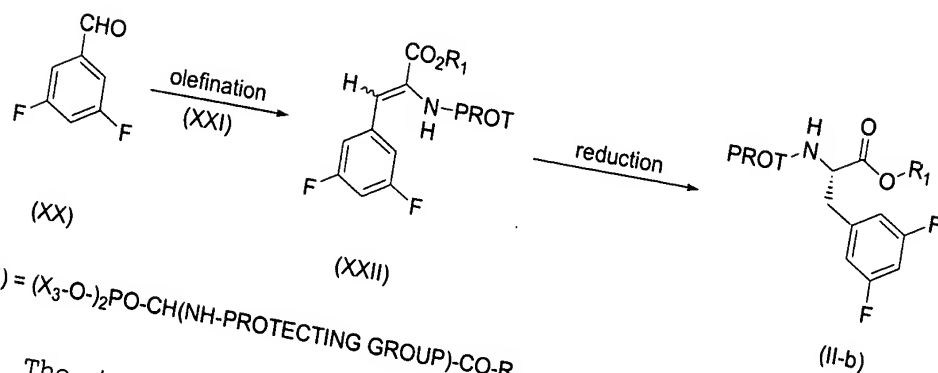
SCHEME C



SCHEME D



SCHEME E



The invention has been described with reference to various specific and preferred embodiments and techniques. However, it should be understood that many variations and modifications may be made while remaining within the spirit and scope of the invention.